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
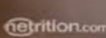



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EDITOR'S LETTER

BY STEVE BLECHMAN, Publisher and Editor-in-Chief

BE YOUR BEST IN 2017

MD Will Show You How



"Knowledge is power" is a quote attributed to Francis Bacon, an English Renaissance statesman and philosopher, and it was also a phrase used by Thomas Jefferson, an American Founding Father and the third President of the United States. Simply put, it means that the more we know and the more information we have, the more we can control and shape our destiny. While Bacon and Jefferson were not jacked, their ideas are timeless and their words resonate with MD readers. Knowledge is the key to being your best, biggest and most ripped. This special issue of Muscular Development has all the information and cutting-edge research on building muscle, burning fat, increasing strength, improving health and enhancing physical and sexual performance.

Our stellar team of researchers, doctors, sports trainers, fitness professionals, champion bodybuilders and experts in the industry gives you the information and tools this month to transform you into a founding father of muscular development, and reach presidential levels of mass. Knowledge is indeed power, and when you have the knowledge in your hands, as you do with this month's issue of MD, you have the power to make change.

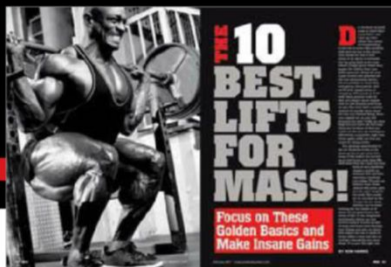


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Bodybuilding is like everything else in life—you work hard to be your best, but unless you are constantly working toward a specific goal or goals, you're just spinning your wheels. The keys to success in any endeavor are to set a goal you are passionate about, give yourself a deadline to achieve it by, develop a game plan to reach that goal and then follow through. "9 Goals That Will Transform Your Physique!" on page 74 can help you make significant improvements and use the power of goal setting to grow in 2017.

Do you have as much mass as you'd like? The nature of bodybuilding is that we're never fully satisfied with what we see in the mirror. Odds are very high that you have not maxed-out on your full potential for size. In "The 10 Best Lifts for Mass!" on page 82, we've rounded up the 10 best lifts for mass, whether you've been training for two weeks or 20 years. Focus on these golden basics and make insane gains.

Paige Hathaway is just another small-town girl born and raised in Minnesota, except she is the proud owner of a tight, bodacious booty that forms a natural focal point—like the Twin Cities of Minneapolis-Saint Paul in her home state. In a few short years, Paige has blossomed into an iconic fitness cover model, entrepreneur and motivational coach with almost 4 million Instagram



followers. In this month's Major Distraction on page 90, we revisit the fine lines of this champion Bikini competitor. And the curves are real! This baby's got back. Go to musculardevelopment.com for exclusive behind-the-scenes video of the photo shoot.

Hunter Labrada is only 24, and he is already following in the footsteps of his father Lee, an icon of 20th century bodybuilding and IFBB Hall of Fame bodybuilder. In "The Labradas: The Next Generation" on page 98, Peter McGough explains that we may well have another Labrada in the pro ranks soon. Hunter won his first two amateur contests, and his father comments, "I can count on one hand the number of bodybuilders I have seen in my lifetime who have as much year-round discipline as my son when it comes to training and diet. His commitment is incredible."

Cody Montgomery already has an impressive bodybuilding résumé, and he's only 22. He won the NPC Teenage Nationals three times, along with an overall at the Collegiate Nationals, before his 20th birthday. Cody made a respectable pro debut at the 2016 Arnold Classic, where he brought sharp conditioning and stood onstage with heavy hitters and veterans like Kai Greene, Cedric McMillan and Branch Warren. Take some tips on arm training from this sensational young gun as Cody blasts bi's and tri's in "Rise of the Young Guns!" on page 106,

and build your own high-caliber weapons.

Muscular Development is your number-one source for building muscle, and for the latest research and best science to enable you to train smart and effectively. Our team of physicians, industry experts and research scientists has these reports on improving performance this month:

"Better Abs, Better Sex" *Fat Attack*, page 54

"Do Ketone Supplements Boost Muscle?" *Nutrition Performance*, page 58

"Get Ripped and Hard With Yohimbine" *Supplement Performance*, page 60

"Get Jacked on Viagra" *Muscle Growth Update*, page 66

"Anabolic Steroids and Sexual Performance" *Testosterone*, page 114

"Activate Your Brain for Maximal Gains!" *Bodybuilding Science*, page 120

"Is There a Best Rep Range for Muscle Growth?" *The M.A.X. Muscle Plan*, page 68

The rest of the book is packed to the binder as usual—making MD your one-stop, most authoritative source for optimizing muscular development with the latest cutting-edge research on training, nutrition, fat loss, performance-enhancing drugs, muscle growth and bodybuilding science—and exclusive information from the industry experts, insiders and bodybuilding legends who make it all happen. See you next month!

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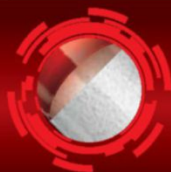
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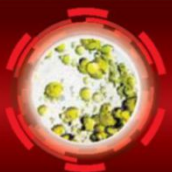


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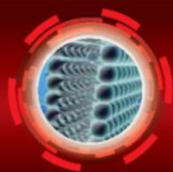
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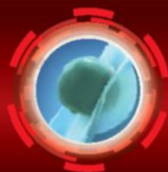
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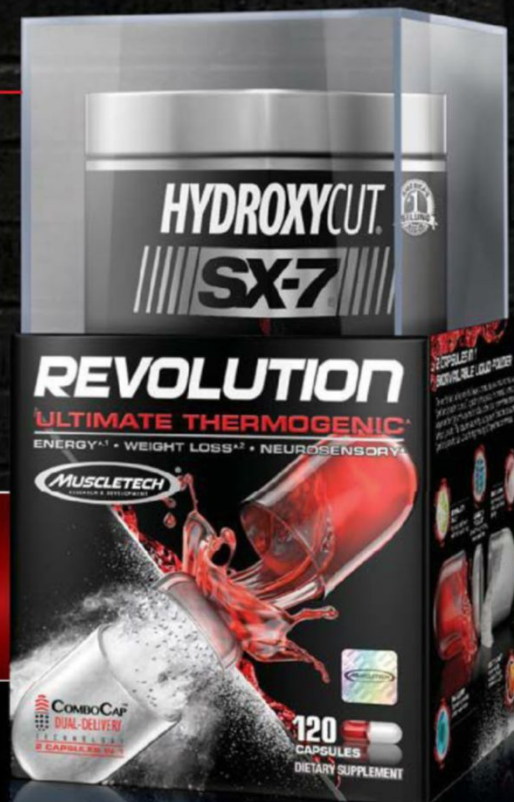
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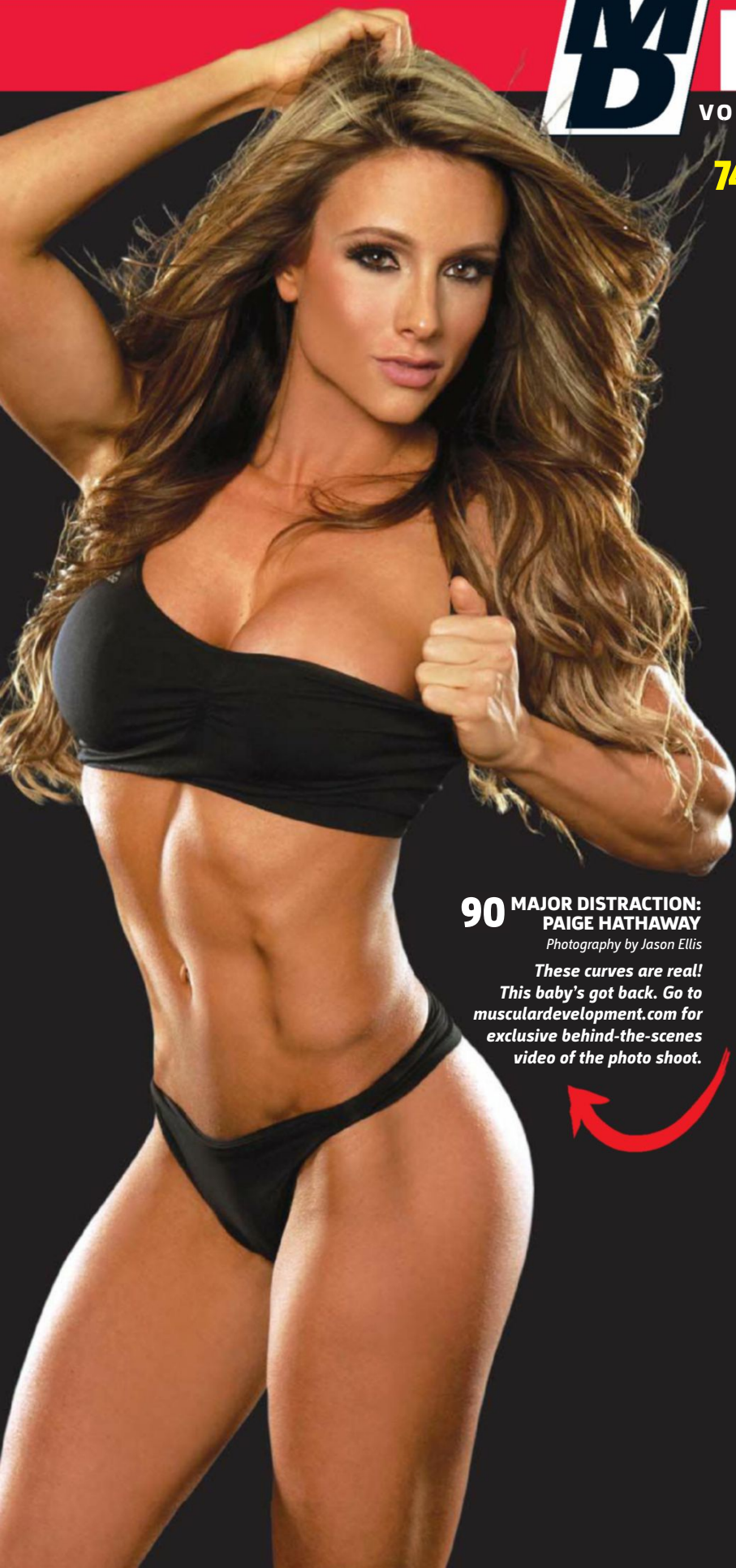


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Features

VOL.54, NUMBER 2, FEBRUARY 2017



90 MAJOR DISTRACTION: PAIGE HATHAWAY

Photography by Jason Ellis

*These curves are real!
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musculardevelopment.com for
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video of the photo shoot.*



74

9 GOALS THAT WILL TRANSFORM YOUR PHYSIQUE!

USE THE POWER OF GOAL SETTING TO COME IN SHAP



THE 10 BEST LIFTS FOR MASS!

Focus on These
Golden Basics and
Make Insane Gains

82

THE 10 BEST LIFTS FOR MASS

Focus on These Golden Basics and Make Insane Gains
By Ron Harris



98

At Age 24, Hunter Labrada Is Following in the Footsteps
and Reps of His Father, Lee – an Icon of 20th Century
Bodybuilding – and We May Well Have Another
Labrada in the Pro Ranks Soon By Peter McGough



106

RISE OF THE YOUNG GUNS

22-Year-Old Cody Montgomery Blasts Bi's and Tri's
By Ron Harris



NUTRITION & PERFORMANCE

- 30 RESEARCH: TRAINING**
By Steve Blechman & Thomas Fahey, Ed.D.
- 34 RESEARCH: SUPPLEMENTS**
By Steve Blechman & Thomas Fahey, Ed.D.
- 42 RESEARCH: NUTRITION**
By Steve Blechman & Thomas Fahey, Ed.D.
- 58 NUTRITION PERFORMANCE**
Do Ketone Supplements Boost Muscle?
By Michael J. Rudolph, Ph.D.
- 60 SUPPLEMENT PERFORMANCE**
Get Ripped and Hard With Yohimbine
By Victor R. Prisk, M.D.
- 65 SPORTS SUPPLEMENT REVIEW**
BEYOND RAW[®] LIT[™] – Clinically Dosed Pre-Workout By Team MD
- 72 SPORTS SUPPLEMENT REVIEW**
Precision Protein[™] From Gaspari Nutrition[®]
By Team MD
- 73 RETAILER OF THE MONTH** By Team MD
- 128 MUSCLETECH RESEARCH REPORT**
By Team MuscleTech[®]

departments

- 18 HOW I SEE IT**
By Shawn Ray and Kevin Levrone
- 22 BODYBUILDING MECCA**
By Bev Francis and Steve Weinberger
- 24 GENERATION IRON** By Vlad Yudin
- 26 KAI'S WORLD**
- 28 TRUE BRIT** By Peter McGough



HEALTH & PERFORMANCE

- 38 RESEARCH: HEALTH & PERFORMANCE**
By Steve Blechman & Thomas Fahey, Ed.D.
- 52 RESEARCH: SEX**
By Steve Blechman & Thomas Fahey, Ed.D.
- 66 MUSCLE GROWTH UPDATE** *Get Jacked With Viagra!* By Michael J. Rudolph, Ph.D.
- 120 BODYBUILDING SCIENCE**
Activate Your Brain for Maximal Gains!
By Michael J. Rudolph, Ph.D.

INSIDE STACK

- 10 EDITOR'S LETTER** By Steve Blechman
- 148 MARKETPLACE**
By Angela Theresa Frizalone and Manda Machado

TRAINING

- 68 THE M.A.X. MUSCLE PLAN** *Is There a Best Rep Range for Muscle Growth?*
By Brad Schoenfeld, Ph.D., CSCS, FNSCA
- 130 BIG RON**
By 8-Time Mr. Olympia, Ronnie Coleman
- 132 MD TRAINING CAMP** *With Dallas McCarver, Dennis Wolf, Dexter Jackson and Justin Compton*
- 140 TRAINERS OF CHAMPIONS**
Charles Glass, Master Trainer Hany Rambod, The Pro Creator George Farah, IFBB Pro Guru Team Oxygen Gym by Ron Harris

FAT LOSS

- 46 RESEARCH: FAT LOSS**
By Steve Blechman & Thomas Fahey, Ed.D.
- 54 FAT ATTACK** *Better Abs, Better Sex*
By Daniel Gwartney, M.D.

DRUGS

- 48 RESEARCH: DRUGS**
By Steve Blechman & Thomas Fahey, Ed.D.
- 116 TESTOSTERONE** *Anabolic Steroids and Sexual Performance* By Daniel Gwartney, M.D.
- 124 ANABOLIC RESEARCH UPDATE AND Q&A** By William Llewellyn
- 144 BUSTED! LEGAL Q&A**
By Rick Collins, JD, CSCS



ON THE COVER: PAIGE HATHAWAY
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HOW I SEE IT

with Shawn Ray and Kevin Levrone

Favorite Physiques of All Time

IN NO ORDER, WHO ARE YOUR 10 FAVORITE PHYSIQUES OF ALL TIME?

Shawn Ray

Bob Paris: The combination of his shape, condition and overall professionalism drew me into the sport on the basis of his movie-star good looks and athletic appeal.

Mohamed Makkawy: No one was a more masterful poser and larger-than-life athlete onstage than the smallest guy onstage, with respect to Mohamed. He was the master of illusion, and posed larger than life. Shape, symmetry and proportions were second to none.

Frank Zane: Frank was a true “artist.” His color, his dryness, his condition and presentation were all a study in perfection. He did more with less than all the bodybuilders prior to him.

Lee Labrada: An inspiration for professionalism on every level. From start to finish in every contest, Lee was more prepared to endure the contest than anyone I ever competed against. I used Lee as a measure of how far I could go. He made me a more complete bodybuilder because of his attention to detail.

Lee Haney: Lee was a role model in many ways for me, especially with regard to what he transformed his body into, and at the age he did it. Lee was an “old soul,” a fatherly figure in speech, but was no-holds-barred in competition. He raised the level of competition based on his size and shape.

Francis Benfatto: Pretty body and even prettier presentation. Slight on muscle, but big on presentation and condition. If Benfatto had come along five years earlier, he could have pushed Samir and Dickerson for an Olympia title.

Serge Nubret: I like the way

Serge, at 6 feet tall, presented his body onstage; with the small waist, full pecs and hanging traps. The legs were slight, but they were in proportion to his athletic build. His physique actually looked achievable to the naked eye, but we all know genetics play a huge part in what’s actually attainable.

Arnold: What can you say about Arnold that hasn’t already been said? You can note his physique, charisma, size, proportions, marketability, work ethic, etc. Arnold was the complete package and smart, too— which made everyone want to be like him one day. I was no different!

Samir Bannout: Mr. Olympia 1983, the year I began bodybuilding, set the stage and tone for what I thought was possible. We were the same height and weight, so “The Lion of Lebanon” made me believe that if he could do it, so could I. He was the complete package for me, and a role model for what I wanted to be like. His condition and presentation in 1983 set in motion my own career to want to do what he had done.

Flex Wheeler: The epitome of what I wanted to look like in 1993, when he won the Arnold Classic. I was blessed to watch the transformation and growth of Flex’s fantastic career, one that is inspirational if you know his humble beginnings. He raised the bar for me to a level I never thought I could go, because every Olympia contest I prepared for, my goal was to look as he did in 1993.

Twitter: @sugarshawnray
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“From start to finish in every contest, Lee was more prepared to endure the contest than anyone I ever competed against.”



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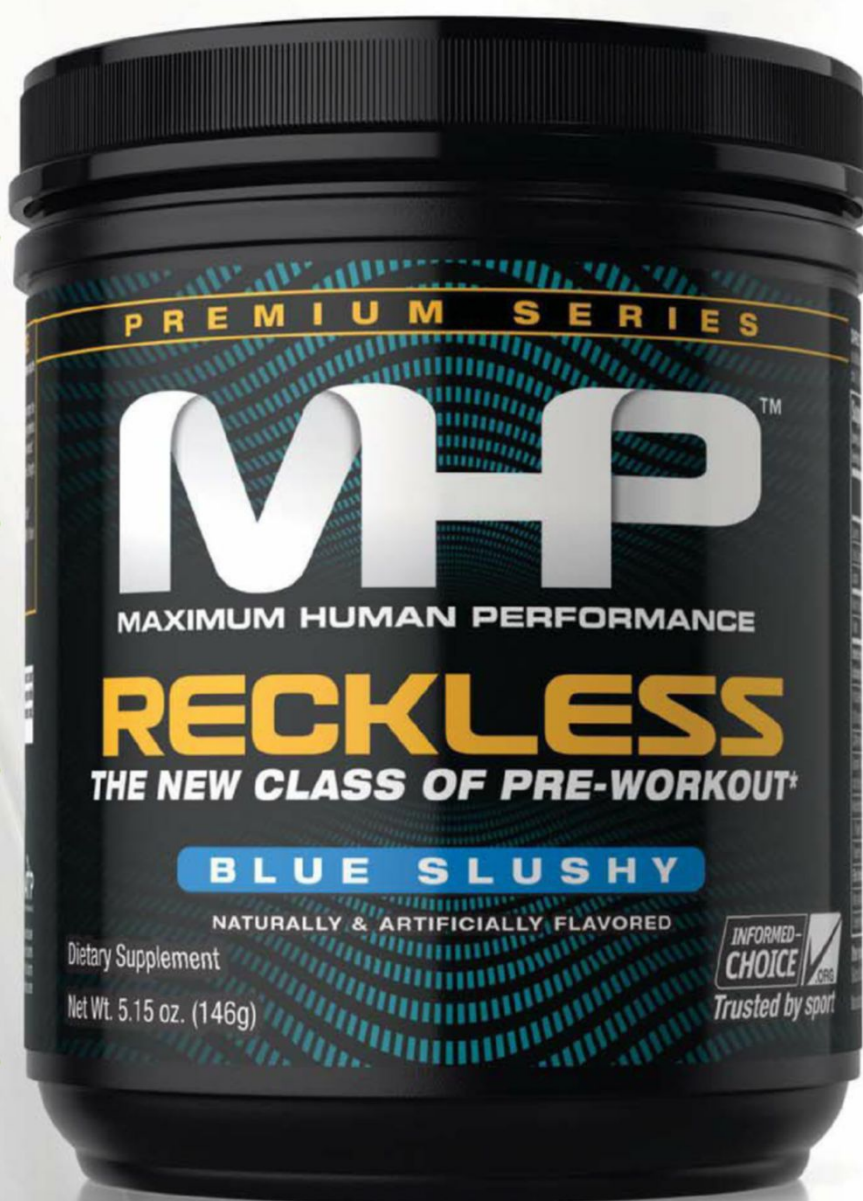
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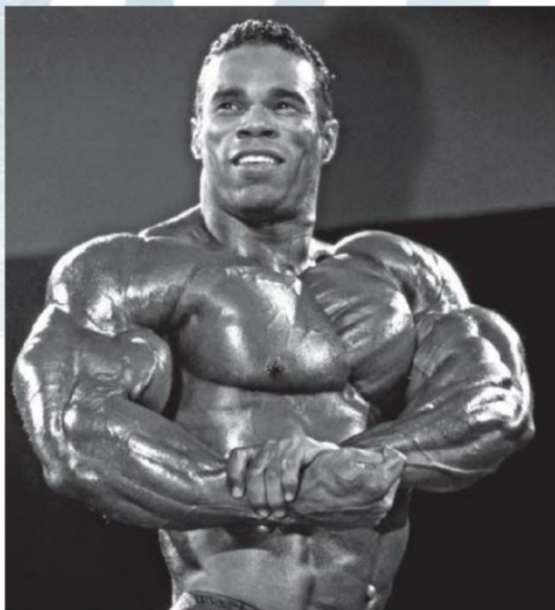
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HOW I SEE IT

with Shawn Ray and Kevin Levrone



“At his best, Ronnie was the biggest, thickest, freakiest bodybuilder we ever saw, with balance and condition, too. Sometimes I would get so freaked-out backstage, I would think, what is that I am looking at?”



Kevin Levrone

Lee Haney: Lee had such incredible structure and shape, but it was also the fact that he was so well grounded that made him a role model for me. Lee was a man's man, and we all looked up to him.

Lee Labrada: Lee was a smaller version of Haney. He was a master of presentation, and was always consistently in peak shape. Like the other Lee, Labrada was a man of integrity and was totally professional in every sense of the word.

Dorian Yates: Dorian ushered in a whole new era with his overwhelming development, and that crazy back of his. He kept getting bigger as his reign went on, starting off around 230 and eventually closing in on 270. We all tried to get bigger as he grew, hoping to keep up. His personality was like a piece of steel: it couldn't be bent or shaped. And of course, his physique was a product of his brutally intense training style. Dorian raised the bar for all of us in the '90s.

Shawn Ray: Even though Shawn didn't have me in his top 10, I have him in mine (it's OK, buddy ... I forgive the oversight!) He had one of the shapeliest and well-balanced physiques ever seen, but it was his posing that always captivated me. He had a certain style and class that no one else could duplicate. I also think he was one of the first pros to use more modern music like Whitney Houston and Mariah Carey, when others had been posing to orchestral arrangements like movie themes.

Flex Wheeler: Perfect balance and shape, and those amazingly round muscle bellies! Like Shawn, I think we were all blown away by his look at the 1993 Arnold Classic. What an illusion those full muscle bellies and that crisp condition created. He was only 214, but you would have sworn he weighed 230 or 240. I was able to watch him grow and mature as both an athlete and a man throughout his career, as we battled onstage many times.

Ronnie Coleman: Dorian grew over his years as Mr. O, but Ronnie exploded! At his best, Ronnie was the biggest, thickest, freakiest bodybuilder we ever saw, with balance and condition, too. His muscles were like giant slabs of hanging meat. I

remember looking at him and thinking, I doubt a silverback gorilla is any thicker than this man. Sometimes I would get so freaked-out backstage, I would think, what is that I am looking at? That can't be a real person! Ronnie took it to a level so high that we haven't seen anyone else since him even match it.

Arnold Schwarzenegger: I was and am a fan of Arnold the bodybuilder, but it was his personality and posing that struck me even more so than his muscles. Arnold knew how to put on a real show and have the audience on the edges of their seats, waiting for his next pose. He was the first champion to bring entertainment to the sport, and we all owe him a debt of gratitude.

Lou Ferrigno: Lou was so tall and massive. I always felt he had the physique to be Mr. Olympia several times if he hadn't gone to Hollywood to be “The Incredible Hulk.” I had the honor of competing with him at the Mr. Olympia when he came back in 1992, and again in '93. In 1993, he was 315 ripped pounds at 6'5", and that was one of the most impressive things I've ever seen.

Chris Cormier: The Real Deal was one of the best and most consistent competitors I ever knew. He competed in a ton of shows, and you always knew that if you slipped up, Chris would be right there to beat you. I called him “The Black Panther,” because he had that combination of power and grace. Chris had a tremendous physique, with almost-perfect structure and shape, along with plenty of mass.

Rich Gaspari: Last, but not least, I have to give it up for The Dragonslayer. First off, Rich is the man who first displayed striated glutes, setting an entirely new standard for condition that the sport had to follow from then on. Secondly, what a warrior! Rich managed to be second in the world only to the great Lee Haney, and fought him tooth and nail, despite giving up height, width and mass. What an inspiration for all the underdogs out there.

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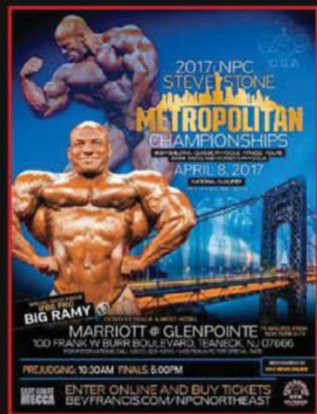
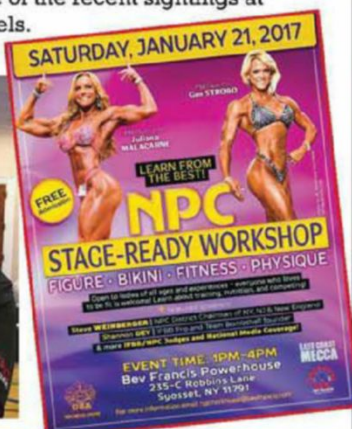
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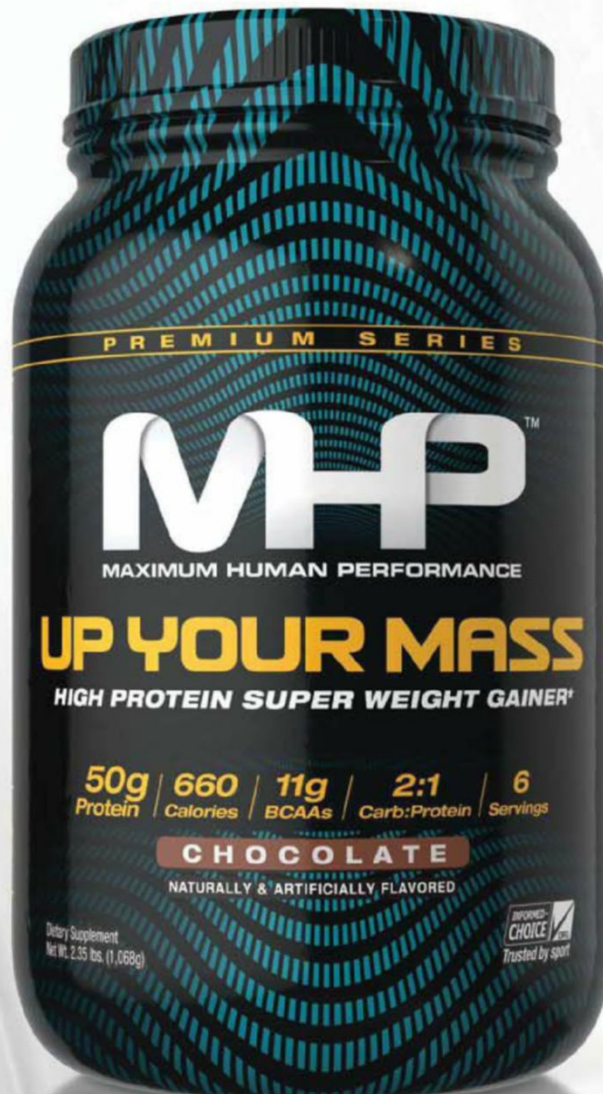
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presents

GENERATION IRON

By Vlad Yudin



GENERATION
IRON
FITNESS NETWORK

"Generation Iron 2" Production Diaries, Volume 1

Last month, we made an unexpected announcement—we are officially starting the production of the sequel to the 2013 film "Generation Iron." The film that put bodybuilding on the big screen and subsequently launched our digital network is finally getting a follow-up. Of course, this might not come as good news to those of you who disliked the film, but most bodybuilding fans truly appreciated it. We have received countless calls and emails from fans stating that they saw GI over 10 times, and how much they loved it. And believe me—we truly appreciate all the support!

Over the last few years, I was approached many times by fans of the film as well as various industry insiders, all of whom kept asking: "When is part two coming out?" To be perfectly honest, I never intended to make "Generation Iron 2." Why? What for? The first one told the story of modern bodybuilding, introduced the main players and set up the competition. There was no need for part two, and I wasn't even intending on exploring it.

Since then, we have continued to create various film projects on sports themes, such as "CT Fletcher: My Magnificent Obsession," about the life and times of powerlifter and motivational speaker CT Fletcher. We also recently released "The Hurt Business," a documentary about the controversial sport of mixed martial arts. As I have been directing these films and was closely involved with our Generation Iron Fitness Network, I started noticing the continued rapid growth of the fitness industry and the emergence of the new generation of bodybuilders and personalities. I also noticed the expansion of fitness expos around the world, the increasing number of shows and the addition of new fitness divisions such as Classic Physique.

I think that in many ways, social media helped to increase the influence of the



Interview with Flex Wheeler for "Generation Iron 2."

sport and especially its participants. The popularity of certain individuals really surprised me, specifically because many of these bodybuilders don't even compete. And then it hit me: now there is a lot more to explore, more to learn and more to document. I suddenly had the urge to learn about the progression of the sport and discover more of its front-runners. I started thinking in a new, deeper direction and little by little, a vision started forming. A vision that slowly turned into the production of a new film—the sequel to "Generation Iron."

So for those who are curious as to what to expect from the sequel, here's what's to come.

THE DIARIES

"Generation Iron 2" is currently in production, and we will use the MD platform to reveal more information about the upcoming film, and open

up with the behind-the-scenes access to MD's readers. Look forward to new diary entries each month, leading up the release of the film in spring of 2017.

THE VISION

The vision of the new film is interesting, and my main goal is to NOT repeat the first one and lazily call it part two. The first film, as you know, followed professional bodybuilders competing for the Mr. Olympia title, while explaining what bodybuilding actually is. The new film will cover the topic of competition, but in addition, it will cover other important topics in the industry, like what it actually takes to become a bodybuilder, to build a brand and how far people are willing to go to achieve the ultimate physique. We start to beg the bigger question: what is the ultimate physique, anyway? This is one of the main questions that the new film will attempt to answer.

We will use the MD platform to reveal more information about the upcoming film, and open up with the behind-the-scenes access to MD's readers.

THE CHARACTERS

There will be new characters introduced in the sequel. We will be exploring people who are taking their bodies to the next level and building brands based on it. We will also focus on the pro athletes who compete onstage and work on developing influence beyond the stage. Also expect to see some of the international stars of bodybuilding. Yes, we will revisit some of the characters from the first film, but there will also be a ton of fresh faces and brand-new stories. Also, expect a lot of interesting cameos from legendary participants of the sport. We will reveal more as we continue our journey through the production of the film.

THE BOTTOM LINE

So when it comes down to it, what can you ultimately expect? Expect a real sequel, and not a remake of the first. Expect to discover more, to be surprised and to have more access than ever before. We will work hard to make history once again, and reveal something new and unexpected.

I know there are many questions and concerns about the upcoming film. Many of you want to know the exact structure, synopsis and players. All will be revealed in due time, but for now, make sure to check out our "Generation Iron 2" diaries in the upcoming issues of Muscular Development and check out GenerationIron.com for more updates.



Steve Weinberger being interviewed for "Generation Iron 2" at the East Coast Mecca.



Steve Weinberger joking around behind the scenes of "Generation Iron 2."



IFBB Pro League President Jim Manion on the set of "Generation Iron 2."



Expect a real sequel, and not a remake of the first. Expect to discover more, to be surprised and to have more access than ever before. We will work hard to make history once again, and reveal something new and unexpected.

EXCLUSIVE KAI GREENE COLUMN!

KAI'S WORLD

PHOTOGRAPHY
BY PER BERNAL

Kai's LEG WORKOUT

LOTS OF SETS, AND SILENT FROM START TO FINISH

Part of the fun of following Kai Greene during a leg workout is you never know what's next. Kai does a lot of sets— and despite two hours of a pre-workout workout, he was still going to do a lot of sets. His headphones are on, and he's silent from start to finish.

Kai starts off with standing single-leg curls. He's not going right into quads to get the heavy stuff out of the way? Nope. Kai pumps through about four sets with each leg, and you can see his enormous hamstring contract through his leggings.

Next up is a superset of stiff-leg deadlifts and lying leg curls. Kai is moving now, and so is the weight. Nothing crazy— but when you consider the pace and volume, it's impressive. Here comes another superset: leg extensions with another lying leg curl (different machine and slightly different angle). You can see the fatigue in his face, but not in his movements.

Kai starts to clear a path for walking lunges, and he methodically does four sets— increasing the weight from just the bar to a 45-pound plate on each side. His steps are controlled, and you can actually see Kai flex and squeeze each different part of his leg. He puts the bar back in the rack, leaving the 45-pound plate on each side. It's now been three and a half hours since Kai entered the gym, and he's ready to squat.

Kai squats with perfect form, working up to 315 for 15 methodical and controlled reps. With that, the workout comes to a conclusion, and the typical leg presses are left out this time. Now it's time to eat.

How did Kai find the energy to squat after three hours of training? His answer was simple: "If you think it's going to be hard, then it will be." It's said that our most powerful asset is the mind, and Kai makes proof of that statement with each workout.

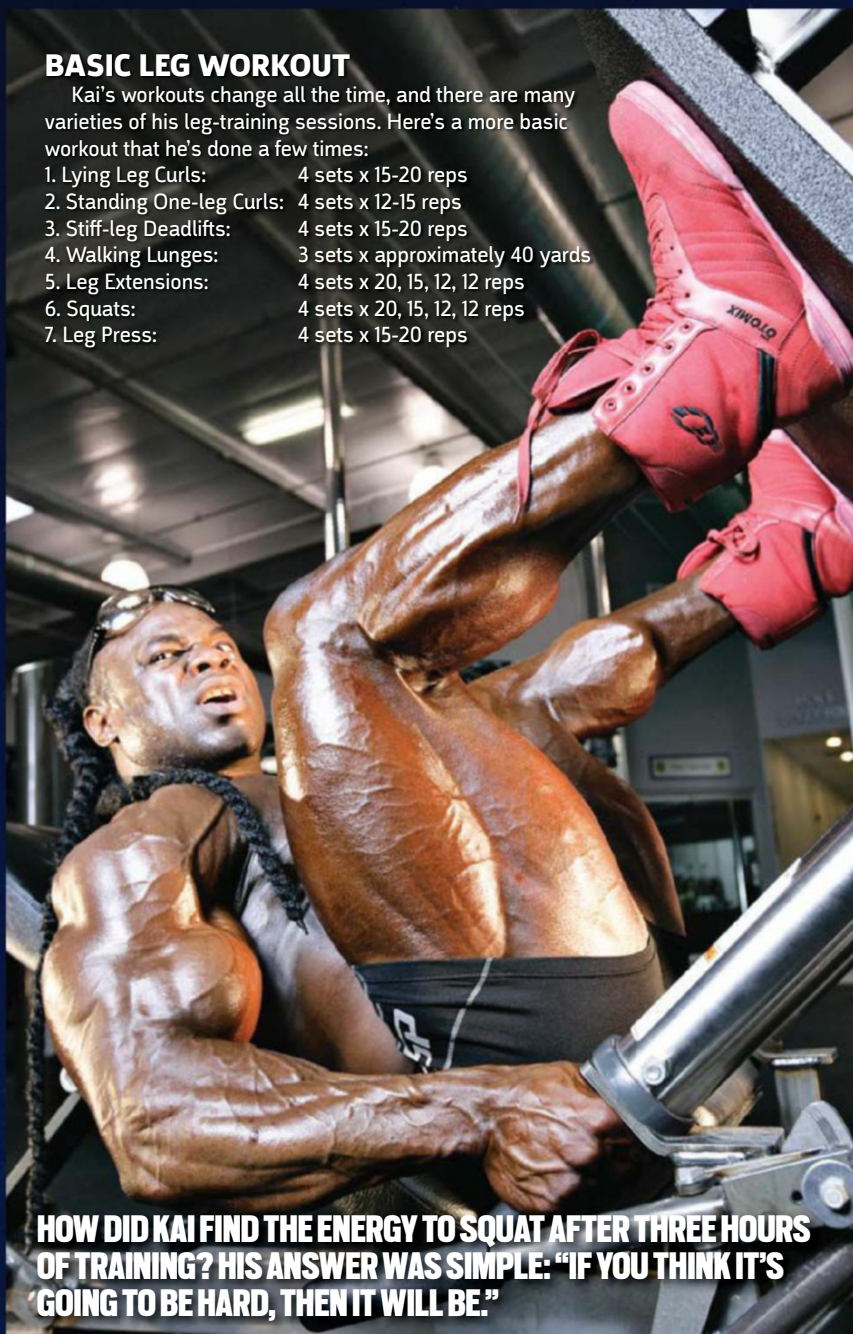
THE MASTER OF MIND-MUSCLE CONNECTION

Kai's movements are precise, contractions are hard and each rep is harmonious with the next. You can see things happening with muscles you never knew existed. Kai's mind-muscle connection is extraordinary— it takes work, focus and understanding of the goal of each movement.

BASIC LEG WORKOUT

Kai's workouts change all the time, and there are many varieties of his leg-training sessions. Here's a more basic workout that he's done a few times:

1. Lying Leg Curls: 4 sets x 15-20 reps
2. Standing One-leg Curls: 4 sets x 12-15 reps
3. Stiff-leg Deadlifts: 4 sets x 15-20 reps
4. Walking Lunges: 3 sets x approximately 40 yards
5. Leg Extensions: 4 sets x 20, 15, 12, 12 reps
6. Squats: 4 sets x 20, 15, 12, 12 reps
7. Leg Press: 4 sets x 15-20 reps



HOW DID KAI FIND THE ENERGY TO SQUAT AFTER THREE HOURS OF TRAINING? HIS ANSWER WAS SIMPLE: "IF YOU THINK IT'S GOING TO BE HARD, THEN IT WILL BE."

1. LYING LEG CURLS

On each rep, Kai lifts his hips slightly as he contracts his hamstrings. This makes for a deeper squeeze in the hams and a much harder contraction. He adds in a momentary pause at the top and you can see his enormous hams fill with blood.

2. STANDING LEG CURLS (SINGLE LEG)

Kai is all about visualization, and this move allows him to imagine he is standing onstage while squeezing his hamstrings in a rear double biceps or lat spread. Kai keeps his body completely still, and only moves the working hamstring—there is no hip movement or cheating to get the weight up.

3. STIFF-LEG DEADLIFTS

Kai has a trick on this one: He stands pigeon-toed, and makes a conscious effort to keep turning his toes back in after each rep—give it a try and you'll feel it on the first rep. You'll also quickly understand why you don't see Kai using a ton of weight.

4. WALKING LUNGES

For Kai, the challenge isn't getting from one end to the other—the challenge is making his legs grow. With each step, he carefully plants his heel, and lunges down until his back knee touches the ground—and slowly pushes back up before taking the next step. It's most effective to step, then lunge—rather than trying to lunge into each step and cut short the contraction.

5. LEG EXTENSIONS

High reps or heavy weight? Both! Kai will do as many sets as he needs to get connected with his quads, and each set is in the range of 20 reps. The amazing thing to see is how he keeps increasing the weight, and each set looks as smooth and natural as the last. As he gets to the bottom of the weight stack and failure comes before the 20th rep, Kai will pause for a few breaths and resume the set until he reaches the magic number.

6. SQUATS

Kai uses the connection he has with each muscle to make squats a complete leg exercise with a glute-hamstring focus—instead of a mass-builder for his quads. Each rep is deliberate and controlled as he squeezes his glutes and tightens his hamstrings all the way down and back up. Each rep of the squat is full of opportunities to contract a different part of the leg; if you can do this effectively, you can build big legs and not just big quads.

7. LEG PRESS

Feet are wide and high, so the quads are still working, but the hams are taking some of the load. Just like squats, Kai is controlling the weight through every inch of movement and never using momentum. While many guys use the leg press to load up the weight, for Kai it's a finishing move to add some polish to his wheels.



LISTEN TO YOUR BODY

Kai is living, breathing and massive proof that there is only one rule: listen to your body. He does everything to the contrary of conventional training wisdom. First, there's the long cardio session before weight training. When you've been training as long as Kai, you learn what your body likes best. He knows he has the mental strength to push through the workout after cardio, and he likes how it feels to hit the weight warmed-up from a long session on the StairMaster. The same goes for the ab session after cardio—that's where it feels right, and he never skips it like he would at the end.

How about training calves and glutes before quads and hams (or anything before quads and hams)? Again, the answer was simple: "I work my body parts in the order of weakest to strongest." The areas that need the most work get Kai's attention when he has the most energy.

It all comes down to one basic premise: there is no one plan that works for everyone. Do what your body needs to grow best. When you can hear your body loud and clear, the path to growth is just a matter of sets and reps.



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	AMOUNTS PER SUGGESTED SERVING				
PREWORKOUT	400mg	6g	5g	2.5g	2g
COMPETITIVE BRAND #1	DJ-PB	NONE	1g (as Creatine Nitrate)	DJ-PB	16g
COMPETITIVE BRAND #2	DJ-PB	NONE	DJ-PB	DJ-PB	NONE
COMPETITIVE BRAND #3	DJ-PB	DJ-PB	DJ-PB	DJ-PB	DJ-PB
COMPETITIVE BRAND #4	175mg	15g	3g	NONE	15g
COMPETITIVE BRAND #5	DJ-PB	NONE	NONE	NONE	NONE
COMPETITIVE BRAND #6	190mg	NONE	NONE	NONE	16g
COMPETITIVE BRAND #7	DJ-PB	NONE	NONE	NONE	2g
COMPETITIVE BRAND #8	350mg	6g	2g (as Creatine HCl)	NONE	16g

DJ-PB = Dosage Unavailable, Proprietary Blend

 = Highest Dosage

A Comparison of the Top 3 Proven Post-Workout Nutrients

	L-Leucine	Creatine Monohydrate	Betaine
	AMOUNTS PER SUGGESTED SERVING		
POSTWORKOUT	5g	5g	2.5g
COMPETITIVE BRAND #1	DJ-PB	NONE	NONE
COMPETITIVE BRAND #2	2.5g	NONE	NONE
COMPETITIVE BRAND #3	DJ-PB	NONE	NONE
COMPETITIVE BRAND #4	DJ-PB	NONE	NONE
COMPETITIVE BRAND #5	2.5g	NONE	NONE
COMPETITIVE BRAND #6	2g	NONE	1.25g
COMPETITIVE BRAND #7	DJ-PB	NONE	NONE
COMPETITIVE BRAND #8	3.6g	2g (as Creatine HCl)	1.5g

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TRUE BRIT

THE BODYBUILDING HISTORIAN



with **PETER MCGOUGH**

Of all the 13 Mr. Olympias, one who seems to not get as much attention as his other 12 peers is two-time (1976, 1981) champ Franco Columbu. Now 75, he is the oldest living Mr. Olympia and is still seen regularly at bodybuilding events with his longtime cohort Arnold Schwarzenegger, where he sort of plays Robin to the Austrian's Batman.

Born in Sardinia, Italy, on August 7, 1941, he started out as a boxer, then was a powerlifter and finally became a bodybuilder when he and Arnold first met in Munich—where they had both relocated to—in 1965. They hit it off immediately, due to their drive and passion for gym work, and also for their propensity to enjoy themselves along the way. They both eventually moved to California (Arnold in 1968, Franco a year later) and became leading members of that '70s golden era. Here are a few tales of Franco, double Mr. Olympia and all-round funster.

A SMALL FIB

When Joe Weider enabled Arnold to move to California in 1968, the future Mr. Olympia missed the camaraderie of his Munich-based training partner. Thus, he lobbied Joe to move Franco to California. The fast-talking Arnold gave Joe the impression that the 5'5" Franco was of similar size to his 6'2" and 240-pound



Franco Columbu is the oldest living Mr. Olympia and is still seen regularly at bodybuilding events with his longtime cohort Arnold Schwarzenegger, where he sort of plays Robin to the Austrian's Batman.

JIMMY CARUSO



After anticipating an Arnold clone, when Joe first saw Franco he is reputed to have said, "What happened, he got caught in the rain?"

self. He told the Master Blaster, "Franco can deadlift 700 pounds, he's a magnificent specimen. He pushes me so hard that he makes me better. Having Franco in the gym with me will make me a better bodybuilder."

Joe acquiesced, and Franco arrived stateside. After anticipating an Arnold clone, when Joe first saw Franco he is reputed to have said, "What happened, he got caught in the rain?"

GETTING A RISE OUT OF JOE

In their early Californian days, Arnold and Franco shared an apartment. Joe gave them a payment every month, but it was not enough to live on so they started their own bricklaying business to supplement their income. Hear Franco as he tells the story of how he and Arnold conspired to try and get Joe to increase their payment.

"When I came to California, we were getting some money from Joe. I said to Arnold, 'Look, we go shopping on Friday and by Tuesday the food is gone. Maybe we should get together with Joe and ask for a raise.' Arnold said, 'Good idea! But first, to impress Joe, you have to deadlift 700 pounds.' I said, 'I just killed myself training to win the [1970] Mr. Universe.' Joe came down to Venice Beach and I deadlifted 700 pounds for two reps, but Joe walked away like he was pissed off.

"We all went back to our apartment and I started to cook steaks and pour the wine, and I said to Arnold, 'Ask him for the raise now.' Arnold says, 'No, give him more wine ... give him more wine.' Finally, Arnold figured Joe was sufficiently lubricated and he started his pitch to ask for a raise. But Joe could read what he was up to before Arnold got to the point and he snapped, 'C'mon, Franco is a lazy bastard. He should have lifted 800 pounds and forget about doing all this monkey business.' We eventually got a little raise— about one percent."

THE PECKING ORDER

Mike Katz, he of the enormous chest development, was also a member of that golden era. Arnold and Franco were of the opinion that Katz exaggerated the contours of his pecs by constantly walking around with them flexed. One day, they hatched a plan to

naïl whether Mike was indeed overamplifying his pec size.

They invited him for lunch at their apartment and drank two glasses of wine. As Franco recalls, "That was plenty to wipe Mike out, so we suggested we all have an afternoon nap but Mike said, 'No let's go to the beach.'"

But Arnold and Franco insisted, telling Mike that after drinking the wine, in order to make the muscles grow, we have got to lie down for an hour and sleep. So, Mike lay down on the couch and Franco and Arnold disappeared into their bedrooms. Once convinced that Mike was asleep, the duo snuck into the lounge. Mike was sleeping soundly, lying on his side, and as he inhaled and exhaled his chest was as enormous as the waking version— which they had both suspected was a bit of a scam.

Arnold exclaimed, "Look, he has that big chest naturally— there's no way he could fake it when he's asleep. And look, his head is hanging off to the side— he can't get it on the pillow because his shoulders are so big."

Arnold and Franco started laughing, which woke Mike up and prompted him to ask, "What are you guys staring at me for?"

Franco replied, "It's true! You do have a big chest!"

A bemused Mike said, "Well, yeah?"

CAN'T TOP THIS

In a 1995 interview, I asked Franco to reflect on his two Olympia wins. Here is how he responded.

"In 1975, I lost the Olympia to Arnold but it was very close— it could have gone either way. After the contest, Arnold told me, 'This is my last Olympia— everybody is improving so much.' So for 1976, I trained my butt off because to win you have to show improvement from the previous year; standing still won't get you the crown. I made substantial improvements and won that year's Olympia. That remains my most memorable bodybuilding moment. The feeling of being announced Mr. Olympia was incredible. So incredible that at the moment of victory, I jumped about three feet in the air. Then I had to take a big, deep breath to think about what I had done. What I had done was get to the top, top, top, top!"

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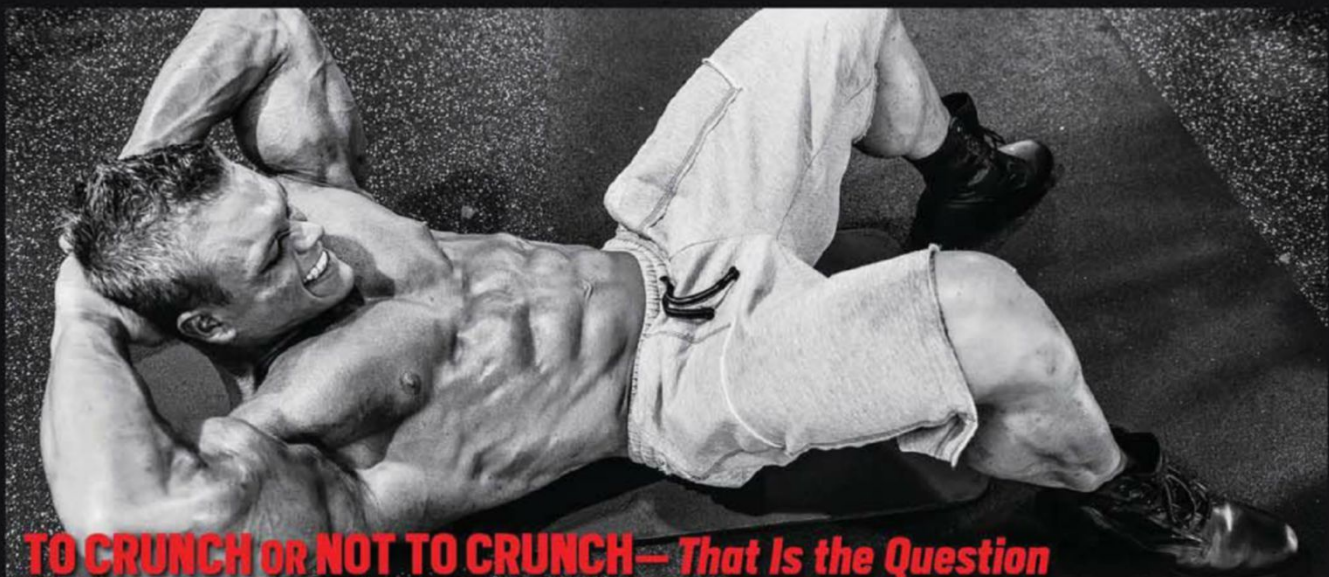
THE CYCLE OF SUCCESS: Training, Recovery and Adaptation

Optimizing training adaptation requires an optimal balance of training stress and recovery. This process must be individualized. The coach or athlete must use a variety of training and recovery methods that contribute optimally to this process. Methods such as periodization attempt to optimize load and recovery, while nutrition (e.g., carbs, whey protein, leucine) and modalities such as cold water promote recovery. Periodization of training varies the type, volume and intensity of exercise during different times of the year and from one workout to the next. The basic idea is to emphasize specific kinds of fitness during different times of the year (i.e., general conditioning and base strength during the off- and pre-season, and peak strength and power during the competitive season). The ideal program design is structured to provide adequate rest to ensure high-quality workouts. During the competitive season, the program should develop peak strength and power while allowing skill development and maximum performance during contests and games. Because of the complex nature of periodized workouts, the concept is extremely difficult to test scientifically. Consequently, periodization of training is as much art as science. (Strength and Conditioning Journal, 38: 10-26, 2016)



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Strength and power athletes need a combination of strength, power and muscle size. Strength is the ability to exert force, and power is the ability to exert force rapidly. Larger muscles ultimately have the capacity for greater strength because they have more tissue area to exert force. Brad Schoenfeld from CUNY Lehman College in New York found that a training program involving two to four reps per set using heavy weight triggered greater strength gains than performing eight to 12 reps per set at a moderate weight. Moderate-load training produced increases in muscle size (limb circumferences). The test subjects performed three sets of seven exercises, three days per week for eight weeks. Use heavy loads and two to four reps for strength and moderate loads and eight to 12 reps for muscle size. (Journal of Sports Science and Medicine, 15: 715-722, 2016)



TO CRUNCH OR NOT TO CRUNCH— That Is the Question

The crunch has been the major exercise for building the abdominal and core muscles for more than 50 years. However, the exercise puts an unacceptable load on the spine that can lead to disk injury and chronic back pain— according to Morey Kolber from Nova Southeastern University. Developing core stiffness is more important than building trunk flexion fitness because it strengthens muscles, improves muscular endurance, reduces low back pain and boosts sports performance. Greater core stiffness transfers strength and speed to the limbs, increases the load-bearing capacity of the spine and protects the internal organs during sports movements. In contrast, Brad Schoenfeld from Lehman College argued that data on spinal loads during the crunch come from mechanical movements in pig cadaver spines. Trunk flexion is a movement in wrestling, baseball, tennis, gymnastics, soccer, swimming, and track and field. Unlike isolated pig spines, soft tissue in living humans adapts to exercise and gets stronger. Identification of the best core and ab exercises remains controversial. (Strength and Conditioning Journal, 38: 61-64, 2016)

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Greater Power Output During Drop Sets Than During Reverse Drop Sets

The drop set technique is terrific for pushing muscles to their absolute max. The method is simple: do as many reps as you can. Then, immediately drop the weight by 10 to 15 percent and try to squeeze out a few more reps, and then use even less weight and do as many reps as you can. Keep going until you can't do any reps. Do the opposite for reverse drop sets: increase the weight with each set and decrease the reps. Masahiro Goto from Ritsumeikan University in Japan and co-workers, found that in trained people, drop sets resulted in greater power output, motor unit activation and muscle hypoxia (low oxygen) than reverse drop sets. This should trigger greater gains in muscle hypertrophy. There were no differences between training methods in untrained people. Time under tension and motor unit activation are critical for muscle growth. This study showed that drop sets produce mechanical and metabolic stress necessary for muscle growth. (*Journal of Sports Science and Medicine*, 15: 562-568, 2016)



WEIGHT TRAINING PLUS PROTEIN Before Bed Maximizes Muscle Protein Synthesis

Consuming a 30- to 50-gram protein supplement before bed increases muscle protein synthesis. The effect is even greater if weight training is also practiced in the evening before consuming the supplement—according to Jorn Trommelen from Maastricht University Medical Center in the Netherlands. Researchers accurately assessed muscle protein synthesis by measuring the rate that isotope tracers included in the protein supplement were incorporated into muscle tissue. Weight training before drinking the supplement resulted in greater incorporation of the amino acids into the muscle. Training before bed and supplementing protein is a simple way to boost muscle growth. (*Medicine Science Sports Exercise*, 48: 2517-2525, 2016)

LONG-TERM HIIT Enhances Aerobic Capacity and Glycogen Storage

Few exercise techniques are more effective at improving fitness rapidly than high-intensity interval training (HIIT)—a series of brief, high-intensity exercise sessions interspersed with short rest periods. Canadian researchers determined that six sessions of HIIT on a stationary bike increased muscle oxidative capacity by almost 50 percent, muscle glycogen by 20 percent and cycle endurance capacity by 100 percent. The subjects made these remarkable improvements by exercising only 15 minutes in two weeks. Each workout consisted of four to seven repetitions of high-intensity exercise (each repetition consisted of 30 seconds at near-maximum effort) on a stationary bike. Even though interval training has been practiced for more than 100 years, it has only recently become a popular training method with the masses. Gustavo Araujo from the University of Campinas in Brazil and co-workers, in a study on rats, found that practicing HIIT for 12 weeks resulted in better aerobic adaptations than training for six weeks. The training stimulus is different in humans who volitionally try to train to the max and rats that trained for survival. (*Frontiers in Physiology*, published online October 28, 2016)

LIMITED-TIME BONUS SIZES

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From the biggest name in performance protein comes a new, superior 100% whey protein formula – NITRO-TECH® 100% WHEY GOLD. It features fast-absorbing whey peptides for a powerful insulin spike and superior amino acid uptake. Each scoop serves up 24g of cold-filtered, ultra-premium protein, 5.5g of BCAAs, and 4g of glutamine and precursor. Plus, this 100% whey formula contains no added active ingredients or inferior fillers. All this in a formula your taste buds and muscles will love!

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Protein

5.5g
BCAAs

4g
Glutamine &
Precursor

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Specific Amino Acids in Whey Protein Suppress Hunger

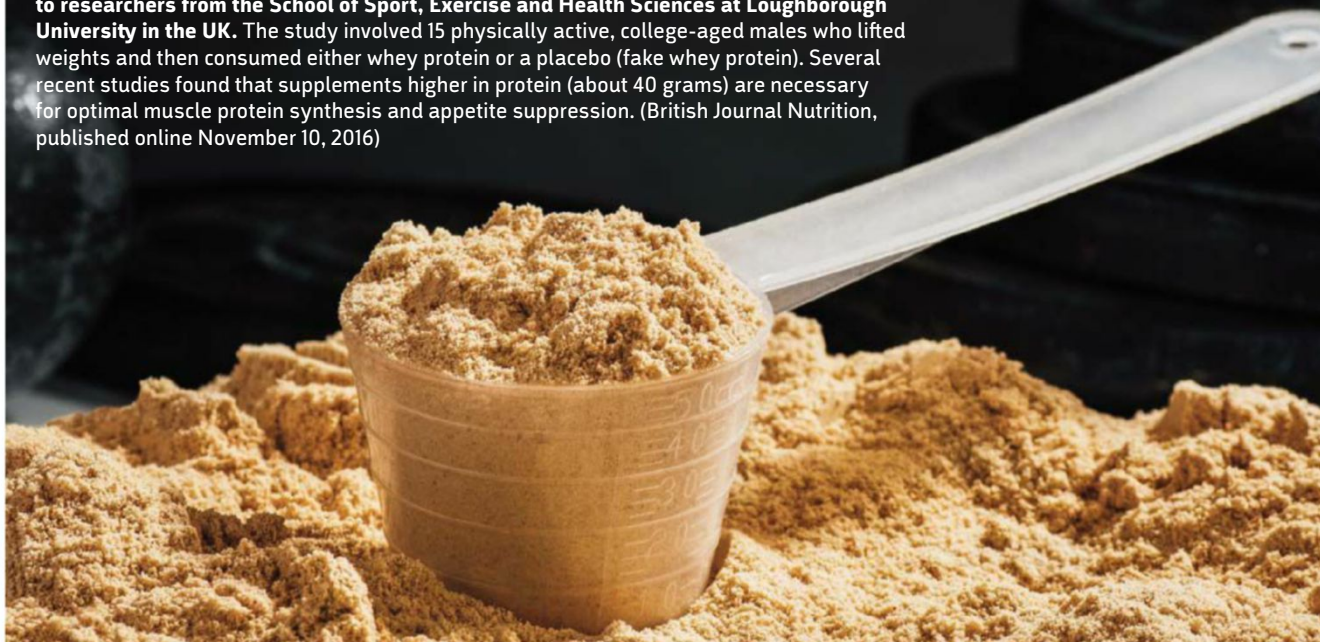
Whey protein is an effective weight-control supplement. It promotes muscle protein synthesis and fat loss, even without weight training or other kinds of exercise. It also suppresses appetite. Researchers from Massey University in New Zealand, in a study on college-aged women who were normal weight, found that individual amino acids within whey protein were responsible for decreasing appetite and promoting satiety (fullness). Researchers compared food intake following a whey protein supplement or an amino acid blend that simulated whey protein, and found no difference in feelings of hunger or satiety. The liver can convert amino acids into blood sugar, which suppresses appetite. (British Journal of Nutrition, 116: 1666-1673, 2016)

Does Long-Term L-Carnitine Use Cause Cancer?

Cancer results from errors in the genetic code that trigger runaway cell growth. Genes have built-in mechanisms that prevent genetic errors, but sometimes they don't work. Environmental factors such as radiation, poisons and even specific foods can increase the risk of genetic errors that lead to cancer. L-carnitine is a popular supplement formed from the amino acids lysine and methionine. It is critical for transporting fatty acids from the cell interior into the mitochondria. Carnitine helps break down long-chain fatty acids and promotes oxygen consumption. The mitochondria are the powerhouses of the cells that provide energy, promote exercise capacity and greatly influence life span. Too much carnitine might cause cancer. A study on rats, led by Christoph Weinert from the Federal Research Institute of Nutrition and Food in Karlsruhe, Germany showed that chronic administration of L-carnitine increased blood levels of trimethylamine-N-oxide (TMAO), which has been linked to cancer and heart disease. Before you dump your L-carnitine, the study was on rats and not humans, and researchers did not show increased rates of cancer or heart attack— only increased levels of TMAO. (Molecular Nutrition, published online December 9, 2016)

WHEY PROTEIN AFTER WEIGHT TRAINING REDUCES CALORIC INTAKE

Consuming a whey protein supplement (20 grams) immediately following a weight-training workout reduced caloric intake during a meal consumed 60 minutes later— according to researchers from the School of Sport, Exercise and Health Sciences at Loughborough University in the UK. The study involved 15 physically active, college-aged males who lifted weights and then consumed either whey protein or a placebo (fake whey protein). Several recent studies found that supplements higher in protein (about 40 grams) are necessary for optimal muscle protein synthesis and appetite suppression. (British Journal Nutrition, published online November 10, 2016)



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TO MAKE A DIFFERENCE

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WILDLAND FIREFIGHTER
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To deliver powerful weight loss, Hydroxycut Hardcore® Next Gen contains *C. canephora robusta*. It also contains caffeine for energy, plus a never-before-seen combination of ingredients for the most extreme sensory experience.

Hydroxycut® CLA Elite Next Gen

It delivers premium 95% CLA, the purest form of CLA available, plus L-carnitine L-tartrate, *Garcinia indica* and raspberry keytones. With the addition of *C. canephora robusta* for weight loss, this unique formula has everything you are looking for.

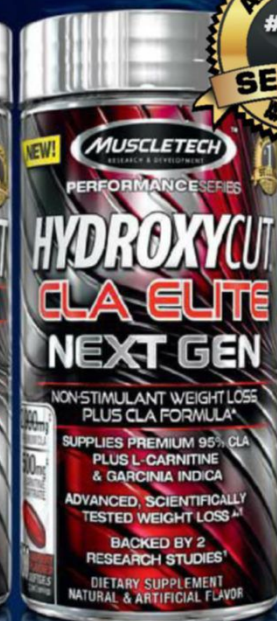
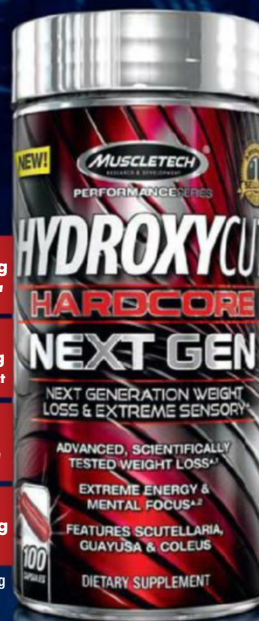
400mg
C. canephora robusta

100mg
Coleus Extract

25mg
Ophiopogon japonicus

290mg
Caffeine

*Per serving



2,000mg
Premium 95% CLA

500mg
L-Carnitine L-Tartrate

500mg
Garcinia indica

NO
CAFFEINE

*Per 2 servings

Subjects taking the key ingredient (*C. canephora robusta*) in Hydroxycut Hardcore® Next Gen and Hydroxycut® CLA Elite Next Gen lost 10.95 lbs. in 60 days with a low-calorie diet, and 3.7 lbs. in an 8-week study with a calorie-reduced diet and moderate exercise.



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Prolonged Use of GREEN TEA EXTRACT Promotes Fatty Liver Disease

Green tea is a popular weight-loss supplement that also improves blood sugar regulation. Chemicals in green tea such as caffeine and catechins—particularly epigallocatechin-3-gallate—speed metabolism and fight fat. Too much green tea is unhealthy. Nina Hirsch, from the Hebrew University of Jerusalem, found that chronic use of green tea extract in mice resulted in liver oxidative stress, inflammation and liver injury. A similar study in adult women showed that high doses (600 to 1,800 milligrams) also caused liver problems. Herbal and dietary supplements account for an increased portion of liver damage cases in the hospital. Supplements most closely linked to liver toxicity include anabolic steroids, green tea extract, conjugated linoleic acid, vitamin A, and garcinia cambogia. Some supplements can result in liver failure, liver transplantation and death. Bodybuilders should be aware of the potential for liver toxicity from taking green tea extract supplements! (Molecular Nutrition & Food Research, 60: 2542-2553, 2016)



HMB Levels Decrease With Age

Beta-hydroxy-beta-methylbutyrate (HMB) is a metabolite of the amino acid leucine. HMB prevents protein breakdown and promotes hypertrophy in beginning weight trainers, and decreases body fat and increases lean mass in power athletes. It is an important regulator of muscle protein synthesis. Researchers from the Abbott Nutrition Research and Development Laboratory in Singapore, in a study on rats, found that blood levels of HMB decline with age. The liver enzyme 4-HPPD became less active in older animals. Muscle loss is a serious problem in aging adults that results in decreased mobility, fractures, poor metabolic health and reduced quality of life. (Experimental Gerontology, 80: 6-11, 2016)

PRE-SLEEP PROTEIN Supplement Boosts Muscle Growth

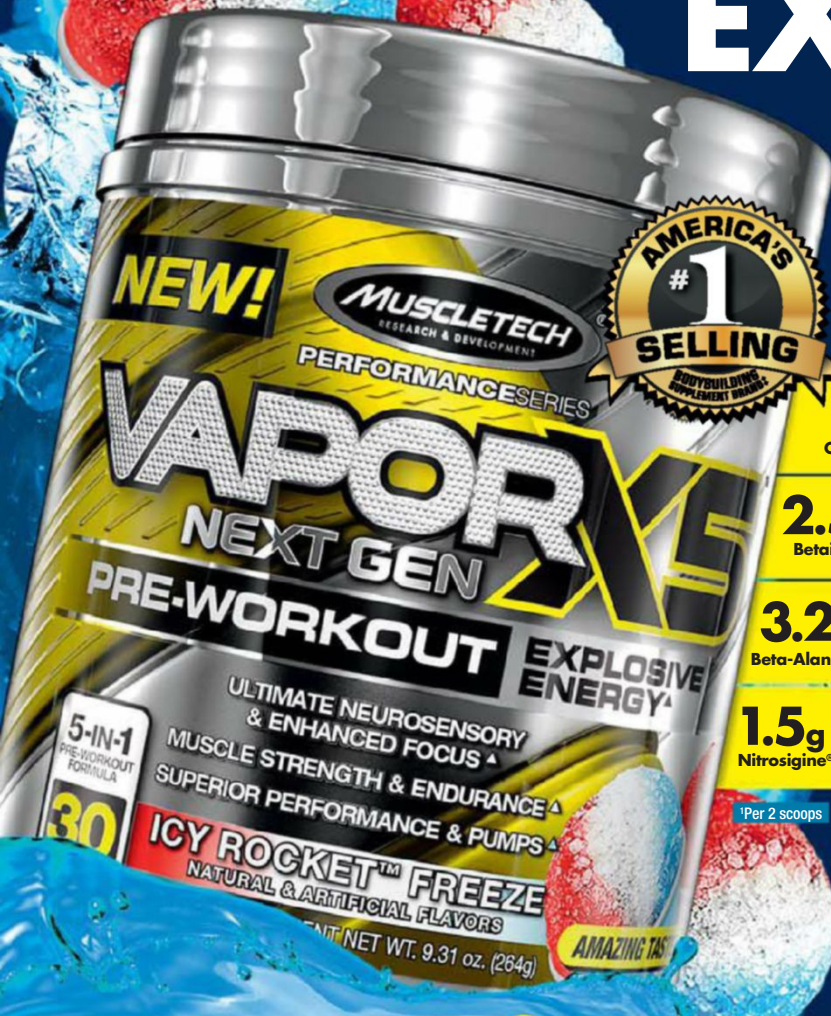
Consuming a high-protein supplement (40 grams) prior to bedtime increased muscle protein synthesis, particularly when accompanied by weight training—according to Jorn Trommelen and Luc van Loon from Maastricht University Medical Center in the Netherlands. Supplements containing 20 or 30 grams of protein did not enhance muscle protein synthesis. The researchers measured muscle metabolism using isotope technology, which precisely determines the rate of protein synthesis. This study is one of many recent studies showing the value of high protein intake for promoting muscle growth. Every night, particularly on training days, consume at least 40 grams of protein before bedtime. (Nutrients, 8: 763, 2016)



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BEST PRE-WORKOUT

AND MORE EXPLOSIVE THAN EVER!



3g
Creatine¹

2.5g
Betaine¹

3.2g
Beta-Alanine¹

1.5g
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¹Per 2 scoops

Nine years ago, MuscleTech[®] researchers redefined the pre-workout category. Now they've done it again with VaporX5[™] Next Gen – the ultimate pre-workout experience! This powerful 5-in-1 formula contains the research-backed ingredient Nitrosigine[®] to increase plasma nitric oxide levels for powerful pumps. VaporX5[™] Next Gen delivers explosive energy, an intense sensory experience, enhanced strength and performance, plus scientifically proven musclebuilding power! So build more muscle and crush through every rep with VaporX5[™] Next Gen! Try it today!



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- Explosive Energy & Endurance
- Researched Musclebuilding Power
- Muscle Strength & Recovery
- Intense Pumps & Performance



ALSO AVAILABLE:

NEW!

VaporX5[™] RIPPED

This powerful formula combines more than just pre-workout and sensory ingredients to deliver a truly complete experience unlike anything you've tried before!

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VaporX5[™] Next Gen provides you with a brand-new funnel scoop. It allows you to measure out the powder and easily dispense it for on-the-go convenience!



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Men Get **OSTEOPOROSIS, Too**

Young men sustain more broken bones than young women. That trend reverses when women reach menopause (usually at about age 51), but men also get more fractures as they age. Osteoporosis or thinning bones is common in post-menopausal women, which often results in life-threatening fractures of the pelvis, femur or spine. Aging men get osteoporosis, and the incidence of the disease is increasing. Spinal fractures, once rare in men, now occur at the same rate as in women until late in life, when the incidence in women increases rapidly. Low blood testosterone is the main cause of osteoporosis in aging men. Testosterone replacement therapy has beneficial effects on bone mass in aging men, but we need more research. Men can prevent osteoporosis as they age by consuming adequate amounts of calcium from dairy and vitamin D and doing weight-bearing exercise, such as bodybuilding. (The New York Times, December 9, 2016)

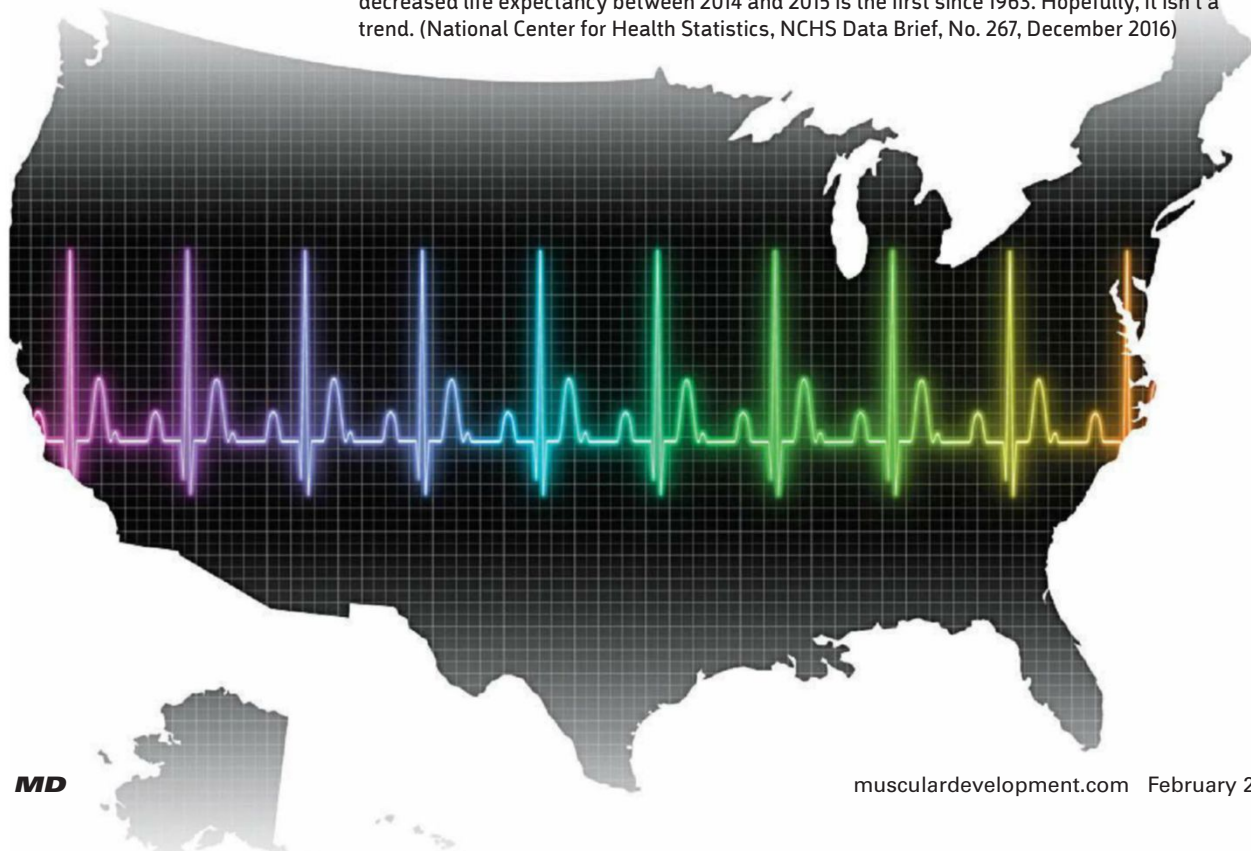


Healthy Lifestyle **More Important Than TESTOSTERONE SUPPLEMENTS**

Low testosterone in aging men is linked to premature death, heart disease, erectile dysfunction, depression, decreased muscle and bone mass, and reduced energy levels. This has triggered an avalanche of testosterone prescriptions that produced revenues of \$2.8 billion in 2015, and projected revenues of \$3.8 billion by 2018. A clinical opinion by Halis Akturk and Todd Nippoldt from the Mayo Clinic argued that physicians should treat the cause of low testosterone in aging men rather than attempting to increase the concentration of testosterone in blood. The symptoms linked to low testosterone levels can often be improved through exercise, fat loss, improved diet, reduced stress and better sleep habits. (JAMA Internal Medicine, 176: 1743, 2016)

LIFE EXPECTANCY DECREASED IN THE UNITED STATES IN 2015

In 1900, life expectancy at birth was 47 years for men and 49 for women. That increased consistently to 76.5 years for men and 81.3 years for women by 2014. In 2015, life expectancy decreased by 0.2 years in men and women— according to the Centers for Disease Control and Prevention (CDC). Death rates rose 0.9 percent for heart disease, 2.7 percent for lower respiratory diseases, 6.7 percent for accidents, 15.7 percent for Alzheimer's disease, 1.9 percent for diabetes, 1.5 percent for kidney disease and 2.3 percent for suicide. The death rate for cancer decreased by 1.7 percent. The CDC could not determine if this change was a "blip" or a significant trend. Before 1950, annual death rates increased in some years because of war and pandemics. The decreased life expectancy between 2014 and 2015 is the first since 1963. Hopefully, it isn't a trend. (National Center for Health Statistics, NCHS Data Brief, No. 267, December 2016)



I DUG DOWN DEEP TO SURPASS EVERY OBSTACLE

SHANE DYCK

FORMER C5 QUADRIPLEGIC

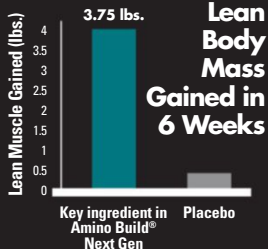
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Resilience like Shane's doesn't come along every day, but when it does, it needs to be talked about. With the help of Amino Build® Next Gen and Amino Build® Next Gen Energized in your program, your goals can become reality! These are the most advanced muscle- and performance-enhancing BCAA+ formulas from MuscleTech®. They help increase strength, build muscle and boost endurance. And on days you're struggling to find the energy to continue, Amino Build® Next Gen Energized is enhanced with naturally sourced, energy-boosting caffeine. It will give you that extra kick you need to keep grinding. Amplify your performance with Amino Build® Next Gen today!



Study subjects using the same clinical dose of betaine in Amino Build® Next Gen put on 3.75 lbs. of lean muscle in 6 weeks in leading university research published in the *Journal of the International Society of Sports Nutrition*.

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BCAAs

4g
Leucine

2.5g
Betaine

0mg
Caffeine

Per 2 scoops



8g
BCAAs

4g
Leucine

2.5g
Betaine

100mg
Caffeine

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↓
Test subjects built 3.75 lbs. of lean muscle

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Clinically shown to boost strength by 40%

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Enhances endurance with the first dose

ENHANCES STRENGTH

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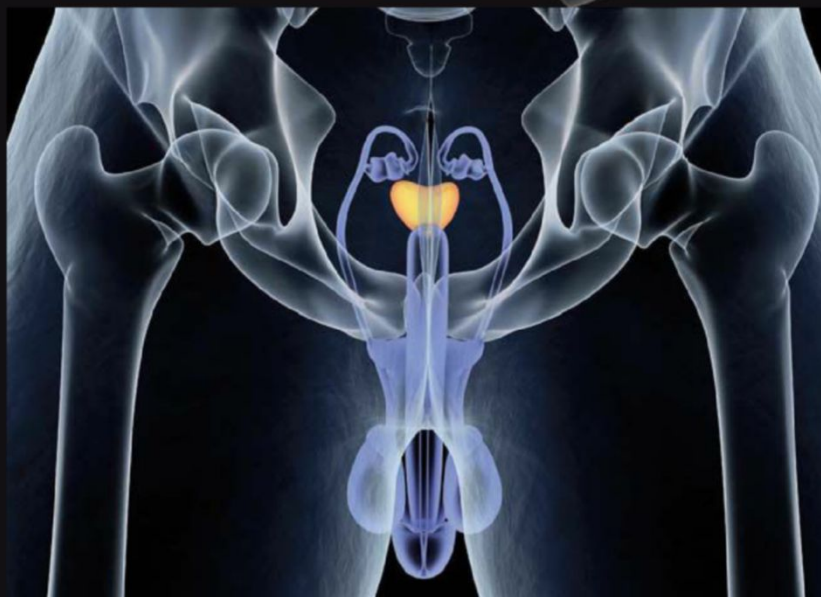
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PHYSICAL FITNESS Protects Against the Effects of Stress

There's not enough money left at the end of the month, the kids are fighting, you forgot your spouse's birthday and you hate your boss. Stress, stress, stress! It's enough to make you— well, unhealthy. Stress is linked to increased blood pressure, depressed immunity and an increased risk of heart disease. A study led by Markus Gerber from the University of Basel in Switzerland showed that people under high stress with higher levels of cardiorespiratory fitness had lower blood pressure, body mass index (proportion of weight to height), blood fats and hemoglobin A1c (marker of blood sugar regulation) than people under high or low stress who were less fit. Physical fitness and exercise can protect you when you're under a lot of stress. (Medicine Science Sports Exercise, 48: 2075-2081, 2016)

Minoxidil Reduces Blood Pressure in Treatment-Resistant Hypertension

Hypertension (high blood pressure) is a leading risk factor of heart attack, stroke and kidney failure. Medications are available that can control high blood pressure, but they are not effective in everyone. Researchers at the University of Heidelberg in Germany found that minoxidil, when added to other blood pressure medications, caused large decreases in resting blood pressure in hard-to-treat patients. The average blood pressure dropped from 162/83 to 136/73 mmHg. Minoxidil is widely used as an over-the-counter hair-restoration drug, but it is also used to control blood pressure. (Journal Clinical Hypertension, 18: 1162-1167, 2016)



PROSTATE CANCER: Monitoring, Surgery or Radiotherapy?

Prostate cancer is the second-leading cause of cancer-related death (lung cancer is number four) in the United States.

Men diagnosed with prostate cancer are often given a choice of treatment between monitoring the progress of the disease, surgery or radiation therapy. A large study of more than 82,000 older men— 2,664 of which were diagnosed with prostate cancer— showed no difference in death rate after 10 years between the three treatment methods— according to Freddie Hamdy and co-workers from Oxford University in the UK. However, the disease had progressed more with active monitoring than with surgery or radiation therapy. (New England Journal Of Medicine, 375: 1415-1424, 2016)

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AJ SHUKOORI

IFBB PRO

@AJFitnow



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80g

High-Quality
Protein¹

8g

Anabolic Leucine¹

10g

Musclebuilding
Creatine

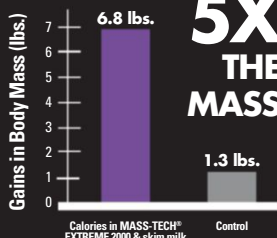
2,000

Calories¹

400g

Multi-Phase
Carb Complex¹

¹When mixed with 16 oz.
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MASS**

BASED ON RESEARCH AT A LEADING AMERICAN UNIVERSITY

In an 8-week study, subjects consuming a high-protein diet containing approximately 2,300 calories and performing a weight-lifting program added 2,000 calories (the same amount found in one serving of MASS-TECH® EXTREME 2000 combined with 16 oz. of skim milk) to their regimen. The results were examined and, on average, subjects gained 6.8 lbs. of mass while control subjects gained 1.3 lbs.



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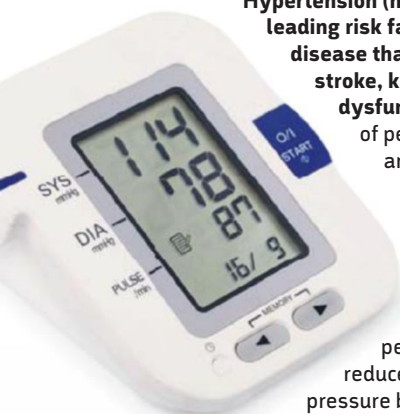
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WHEY PROTEIN Supplements Reduce Resting Blood Pressure



Hypertension (high blood pressure) is a leading risk factor of cardiovascular disease that is linked to heart attack, stroke, kidney failure and erectile dysfunction. Roughly 50 percent

of people with hypertension are not treated through drugs or lifestyle. Julie Lovegrove from the University of Reading in the UK found that supplementing whey or casein protein (56 grams per day for four weeks)

reduced 24-hour systolic blood pressure by 3.9 mmHg and diastolic blood pressure by 2.5 mmHg. The supplements also lowered blood cholesterol and markers of endothelial health. The endothelium is the inner lining of the blood vessels that are responsible for regulating tissue blood flow. Whey protein builds muscle and is also good for your heart and blood vessels. (American Journal of Clinical Nutrition, 104: 1534-1544, 2016)

PROTEIN QUALITY MATTERS

The recommended daily allowance (RDA) of protein is 0.8 grams per kilogram of bodyweight. The development of radioactive tracer methodology has made it possible to accurately assess muscle protein synthesis by measuring the rate that tracers are incorporated into muscle tissue. These studies have shown that in athletes, higher protein intake than the RDA results in greater muscle protein synthesis. Products like BEYOND RAW® RE-BUILT MASS XP deliver 60 grams of protein per serving. A review of literature by Stuart Phillips from McMaster University in Canada concluded that high-quality protein, containing high amounts of the amino acid leucine, supply the necessary amino acids for optimal protein synthesis and triggering chemicals that turn on protein synthesis. Whey protein is particularly high in leucine. (Nutrition & Metabolism, 13:64, 2016)

NUTS The Heart Healthy Superfood

Twenty-five years ago, nutritionists discouraged nut consumption because of their high fat content. Mountains of evidence show that nuts are healthy foods that reduce the risk of cardiovascular disease, cancer and all-cause mortality. A meta-analysis that combined the results of 20 studies involving more than 819,000 people, led by Dagfinn Aune from the Imperial College London, found that consuming 28 grams of nuts per day was linked to a reduced risk of coronary heart disease (29%), stroke (70%), cardiovascular disease (21%), total cancer risk (15%) and all-cause mortality (22%).

The risk of respiratory disease decreased by an astounding 52 percent. Nut consumption also decreased the risk of neurodegenerative disease, infectious disease, diabetes and kidney disease. The results were similar for tree nuts such as cashews and peanuts. Adding nut consumption to your daily diet can have a marked influence on your health. Nuts may trigger these effects by reducing DNA damage, inflammation, insulin-like growth factor levels and suppressing local tissue blood vessel growth. (BMC Medicine, 14:207, 2016)

PROTEIN SUPPLEMENTS Affect Muscle and Heart, But Not Performance

High-protein diets help athletes gain or maintain muscle mass during intense training. Michael Saunders, Andrew D'Lugos and colleagues from James Madison University in Virginia found that supplementing carbohydrates and protein immediately after exercise for 10 days in intensely training endurance athletes increased muscle mass and reduced heart rate during exercise and recovery. The supplement, however, had no effect on cycling performance or muscle soreness. Athletes consumed 64 grams of supplemental protein, which is at least as much as most studies have used in the sports science literature. (Nutrients, 8: 550, 2016)

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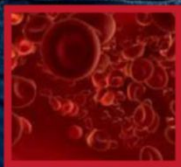


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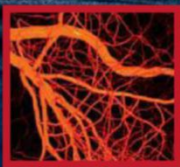
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↓
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Nitrosigine® gets absorbed into the bloodstream, where it increases plasma blood arginine levels, rapidly increasing nitric oxide (NO) production



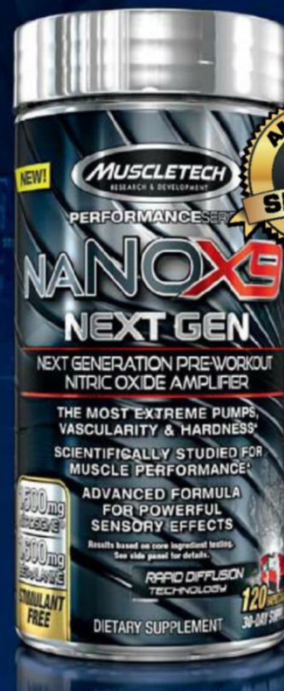
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STAGE 2
Newly formed NO molecules rapidly diffuse from the endothelium into smooth muscle cells that make up the blood vessel, activating the key signaling enzyme guanylyl cyclase (GC)



↓
STAGE 3
Enzyme GC converts guanosine triphosphate (GTP) to cyclic guanosine monophosphate (cGMP), which helps to signal smooth muscle relaxation



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STAGE 4
Contractile reaction within smooth muscle cells of blood vessels are decreased, enhancing vasodilation and muscle pumps!



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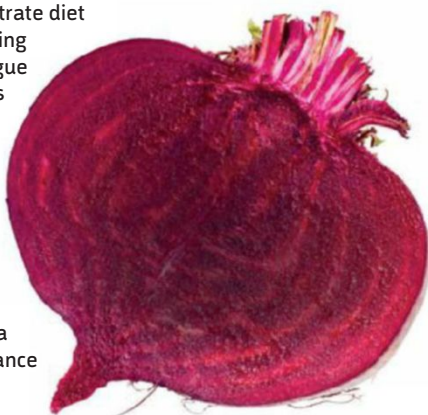
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HIGH NITRATE DIET IMPROVES PHYSICAL PERFORMANCE

High nitrate intake increases the production of nitric oxide by the cells lining the blood vessels. Nitric oxide is a critical chemical that regulates tissue blood flow. Many recent studies found that nitrate supplements (beetroot) improve endurance and decrease blood pressure.

A study led by Simone Porcelli from the Institute of Molecular Bioimaging and Physiology in Segrate, Italy found that cyclists fed a high-nitrate diet showed improved efficiency during stationary cycling, reduced fatigue during high-rep knee extensions and improved repeated sprint performance. The high-nitrate diets contained raw spinach, cooked collard greens, banana and pomegranate juice. The changes in performance were enough to make a difference in competitive athletes. Adding a few healthy foods to the diet is a simple way to improve performance and enhance metabolic health. (Nutrients, 8:534, 2016)



SPINACH Improves Cardiovascular Health

In the world of cartoon superheroes, few can match the natural toughness and raw power of Popeye. As everyone knows, his secret is spinach. A study on mice by scientists from Shaanxi Normal University in China showed that diets high in spinach nitrate decreased insulin resistance (measure of blood sugar regulation), improved endothelial function (cells lining the blood vessels, important for blood flow) and reduced cholesterol, triglycerides and LDL. The researchers concluded that diets high in spinach nitrate improve blood fat regulation, decrease inflammation, enhance blood vessel health and boost blood sugar regulation. (Food & Nutrition Research, 60: 32010, 2016)



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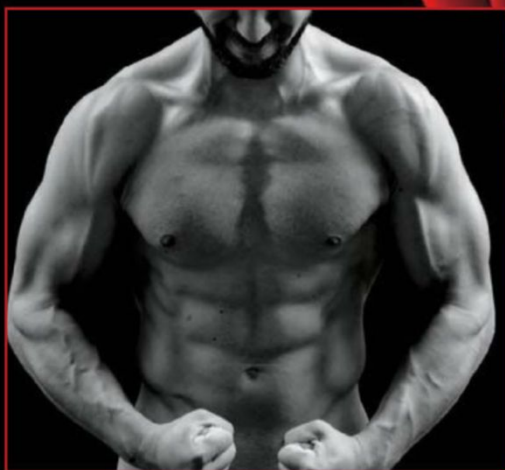


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KETOGENIC DIETS INCREASE HEART DISEASE **Risk in People With Epilepsy**

The brain uses mainly glucose (sugar) for fuel, but it can also use ketones and lactate. During low-carbohydrate, low-calorie dieting, the liver produces ketones to supply fuels to the brain. Ketones come from fatty acids released during fat breakdown that occurs due to low-calorie and low-carbohydrate intake. People with epilepsy are often advised to eat ketogenic diets because they decrease the incidence of seizures. A study led by Patricia de Lima from the National Institute for Science and Technology of Complex Fluids in Brazil found that epilepsy patients following a ketogenic diet developed abnormal blood fats that would increase the risk of heart disease. Other studies have shown that ketogenic diets promote weight loss but may also trigger fatty liver disease. (Nutrition, 33: 271-277, 2017)

Low-Carb Diets **DECREASE MUSCLE MASS AND HEART FUNCTION**



In the short run, people lose weight faster on reduced-calorie, low-carbohydrate diets than on mixed or high-carbohydrate diets. Carbohydrates are the most important fuel for exercise at intensities above 65 percent of maximum effort. Long-term carbohydrate restriction impairs exercise capacity, which could eventually lead to physical deterioration. A study on mice, led by Jessica Nilsson from the University of Umeå in Sweden, found that a low-carbohydrate, high-fat diet caused increases in fat and decreases in lean mass after two weeks—and a deterioration in heart function after four weeks. Humans need a variety of foods. Restricting nutrients can deteriorate metabolic function and lead to poor health. (Nutrition & Metabolism, 13: 79, 2016)

Should Diabetics Consume LOW-CARB DIETS?

Diabetes is a disease affecting blood sugar regulation. People with diabetes either don't make enough insulin, can't use the insulin they produce or a combination of both. Blood sugar buildup damages the blood vessels in the nervous system, kidneys, eyes and heart, which increases the risk of heart attack, stroke, kidney disease, blindness and amputation. Experts disagree on the best diet to manage the disease. Many experts promote low-carbohydrate diets because they minimize increases in blood sugar after a meal. Unfortunately, there is little research supporting this. Also, people have trouble adhering to low- or very low-carbohydrate diets. Losing weight is one of the best ways to improve blood sugar control. (The New York Times, September 16, 2016)

Environmental Chemicals Promote Obesity

Energy balance and the principle of conservation of energy are two of the first lessons you learn in a college nutrition course. In a nutshell, you get fat if you take in more energy than you expend. Likewise, you lose weight when energy expenditure exceeds energy intake. If weight management were that simple, we wouldn't be in the midst of an obesity epidemic. A literature review by Y.M. Lee from Kyungpook National University in Korea concluded that environmental chemicals that alter cellular sensors controlling metabolic rate and food intake interfere with energy balance and promote fat storage. These chemicals include environmental estrogens— molecules that resemble the hormone estrogen— and chemicals found in plastics or manufacturing byproducts that interfere with the control of metabolism, appetite and weight management. Exposure to these chemicals during critical growth periods might condemn people to a lifetime of obesity. Reducing body fat is important because it reduces exposure to environmental pollutants stored in fat cells. Understanding and managing environmental pollutants that influence metabolism is a major public health issue. (Obesity Reviews, published online December 2, 2016)

WEIGHT-LOSS STRATEGIES: Diet, Exercise or Physical Activity?

Energy balance— the balance between energy in and energy out— determines weight gain and weight loss. Over time, few people can control bodyweight through exercise or diet alone. While exercise burns calories, it can also increase appetite in some people. Exercise, however, triggers positive metabolic changes that promote long-term weight control— according to a literature review led by Martin Binks from Texas Tech University in Lubbock, Texas. Many studies have assessed the effects of caloric restriction alone, aerobics or weight training alone, daily physical activity and combinations of diet, exercise and physical activity on weight loss and weight maintenance. The research concluded that the best strategy for long-term weight loss and weight maintenance is calorie control, formal aerobics and resistance exercise programs, and a physically active lifestyle (moving instead of sitting during the day). Exercise and a physically active lifestyle are essential because they improve metabolic health. (Obesity Reviews, published online October 14, 2016)



YOU CAN'T OUTFIT A BAD DIET

The United States Department of Agriculture recommends that men consume 2,640 calories per day and women consume 1,785 calories per day. Considering the obesity epidemic, most people consume more than that. Daily energy requirements vary with body size and physical activity. The Olympic swimming great Michael Phelps reportedly ate 12,000 calories per day during intense training, while couch potatoes can get by on fewer calories. Hunger and satiety are controlled by the hypothalamus in the brain, so the body has a way of regulating its energy needs. Unfortunately, most Americans are obese or overweight. More than 90 percent of people who lose weight gain it back again within a year. "The Biggest Loser" TV contestants showed the folly of trying to manipulate energy balance. Most lost more than 100 pounds, but their resting metabolism was depressed by 700 calories per day, even seven years after the end of the show— which caused them to regain lost weight. A literature review of exercise and appetite, led by David Stensel from Loughborough University in the UK, concluded that people could successfully lose weight and keep it off through restricting calories and doing a lot of exercise. Nobody said it was easy. (Nutrition Bulletin, 41: 314-322, 2016)

A CASE OF BLACK-MARKET STEROIDS GONE WRONG

The Anabolic Steroid Act of 2004 (amended from 1990) made the possession or distribution of anabolic steroids a felony unless prescribed by a physician for medical use. The act also made it illegal to take steroids to improve athletic performance or one's physique. Consequently, most people resort to offshore Internet sources to purchase the drugs that are illegal and not approved by the U.S. Food and Drug Administration (FDA). While some of these drugs are legitimate, others are contaminated or do not contain the drugs on the label. Researchers at Tel Aviv University in Israel reported the case of a bodybuilder who self-injected contaminated trenbolone that was purchased on the Internet. The injection triggered a massive infection and ulceration that required plastic surgery. Complications from these infections can cause nerve damage, tissue death, restricted blood flow, blood poisoning and death. (www.PRSGlobalopen.com, published online August 2, 2016)



Who Uses 'Image and Performance-Enhancing Drugs'?

Thirty to 40 years ago, elite athletes were the principal consumers of performance-enhancing drugs (PEDs). That's changed—according to a systematic literature review led by Rebekah Brennan from the Waterford Institute of Technology in Ireland. Today, PEDs are used by a surprisingly diverse group of people that includes athletes for improved performance, young adults for improved appearance, older adults for life extension and quality of life, and adult men and women trying to enhance sexual performance and enjoyment. The authors of the study used the term "image and performance-enhancing drugs" (IPEDs) to include drug use for health and beauty consumerism. These include attempts to look healthy, sexy and youthful. Most consumers have little knowledge of potential side effects of IPEDs or their danger to one's health. (Health and Social Care in the Community, published online December 15, 2016)

ANABOLIC STEROID USE Symptomatic of Poor Body Image in Men



Prior to 1980, anabolic steroid use was restricted to elite athletes. The popularity of intense exercise programs like CrossFit and ultra-cut movie actors has placed unrealistic expectations on non-athletic men that many have difficulty meeting. Consequently, they use anabolic steroids to keep up. The modern male's obsession with body image has led to previously rare psychological problems such as depression and muscle dimorphism (being obsessed with muscle mass). While eating disorders are rare in men, millennials are resorting to anabolic steroids, plastic surgery and makeup to make them feel better about themselves. The modern emphasis on gender equity has caused many modern young men to question their masculinity. Most women have no trouble talking about their insecurities, but men tend to hide them. Feelings of physical inadequacy are new psychological challenges for modern men, and anabolic steroid use is symptomatic. (Journal American Medical Association, published online December 8, 2016)

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METFORMIN Might Lower Blood Pressure

Metformin is a front-line drug for treating type 2 diabetes. It reduces absorption of glucose (sugar) in the intestines, increases cellular uptake of blood sugar into the tissues, boosts insulin sensitivity and reduces blood sugar production in the liver. An editorial in the *Journal of Hypertension* suggested that metformin might effectively treat high blood pressure by promoting weight loss, reducing insulin resistance and insulin levels, preventing the blood vessel-constricting effects of insulin, deactivating adrenaline receptor sites, reducing cell calcium and promoting salt loss. (*Journal of Hypertension*, 35: 27-28, 2016)

WADA and Interpol Form Anti-Doping Alliance

The World Anti-Doping Agency (WADA) was organized by the International Olympic Committee in 1999 to prevent doping in sports. It tests athletes both in and out of competition for banned substances such as anabolic steroids, growth hormone, erythropoietin and stimulants. In October 2016, WADA teamed with Interpol—the international police agency—to fight international Internet sales in banned substances to elite and amateur sportspeople. Their goal is to cut off the supply of performance-enhancing drugs at the source, before athletes get them. This approach hasn't worked very well with the "War on Drugs" in the United States, where authorities have widespread power; so it will unlikely make much difference for agencies with limited resources or influence. (Nutra Ingredients-USA.com, October 4, 2016)

STEROID EFFECTS ON THE BRAIN

Some people experience psychiatric side effects from anabolic steroid use, such as increased aggression, emotional outbursts (sometimes referred to as 'roid rage) and paranoia possibly linked to changes in brain anatomy. Astrid Bjørnebekk from Oslo University in Norway, and co-workers, performed brain scans on longtime athletic steroid users and non-users. Steroid users had less gray matter, reduced volume of the brain cortex and thinner brain cortex. The results were not affected by group differences in intelligence, depression or anxiety, or attention deficit disorder. High doses of steroids can be toxic to the nervous system and negatively affect blood flow to the brain. (*Biological Psychiatry*, published online June 17, 2016)

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Frequent Sex Improves Memory in Women

Frequent sexual intercourse is linked to better memory in young, adult women— according to a study by Larah Maunder and colleagues from McGill University in Montreal, Canada. They studied 78 heterosexual women, aged 18 to 29, who self-reported their frequency of sex. The women took a computerized memory test for abstract words and faces. Women who had sex most scored better on abstract word tests, but not faces. It won't do most women much good to go on a wild sex binge before taking an anatomy final or bar exam, because the relationship between frequent sex and improved memory was weak. (Archives of Sexual Behavior, published online November 14, 2016)



BIG PHARMA Ruining Sex In America

The baby boom generation is getting old, and many require chemical help to get firm erections. They better have a lot of money if they want sex frequently. Viagra and Cialis, the most popular erection-promoting drugs, cost \$50 a pill— three times higher than seven years ago. Addyi, an FDA-approved drug for boosting sex drive in women, costs \$1,000 a bottle. One solution is to buy offshore drugs on the Internet. The U.S. Food and Drug Administration does not approve these drugs, some are counterfeit, and it is illegal to purchase them without a prescription. However, if you can find a reliable source, the price of generic Viagra or Cialis is \$1 to \$3 per pill. (New York Post, December 8, 2016)

VIAGRA Reduces 24-Hour Blood Pressure In Hypertensives

Viagra (sildenafil) works by increasing a chemical called nitric oxide, which increases blood flow. Brazilian researchers, led by Arthur Catharina from the University of Campinas in São Paulo, Brazil, found that in people with treatment-resistant high blood pressure, a high dosage of Viagra (187.5 milligrams) reduced 24-hour systolic blood pressure by 8.8 mmHg and diastolic blood pressure by 5.3 mmHg. Fifty percent of people with hypertension do not take their medication. People might be more likely to control high blood pressure with Viagra because there are few side effects (e.g., headache, stuffy sinuses), and they get an added sexual benefit. (Journal Clinical Hypertension, 18: 1168-1172, 2016)



Cardiometabolic Index Predicts Cardiovascular Disease and ERECTILE DYSFUNCTION

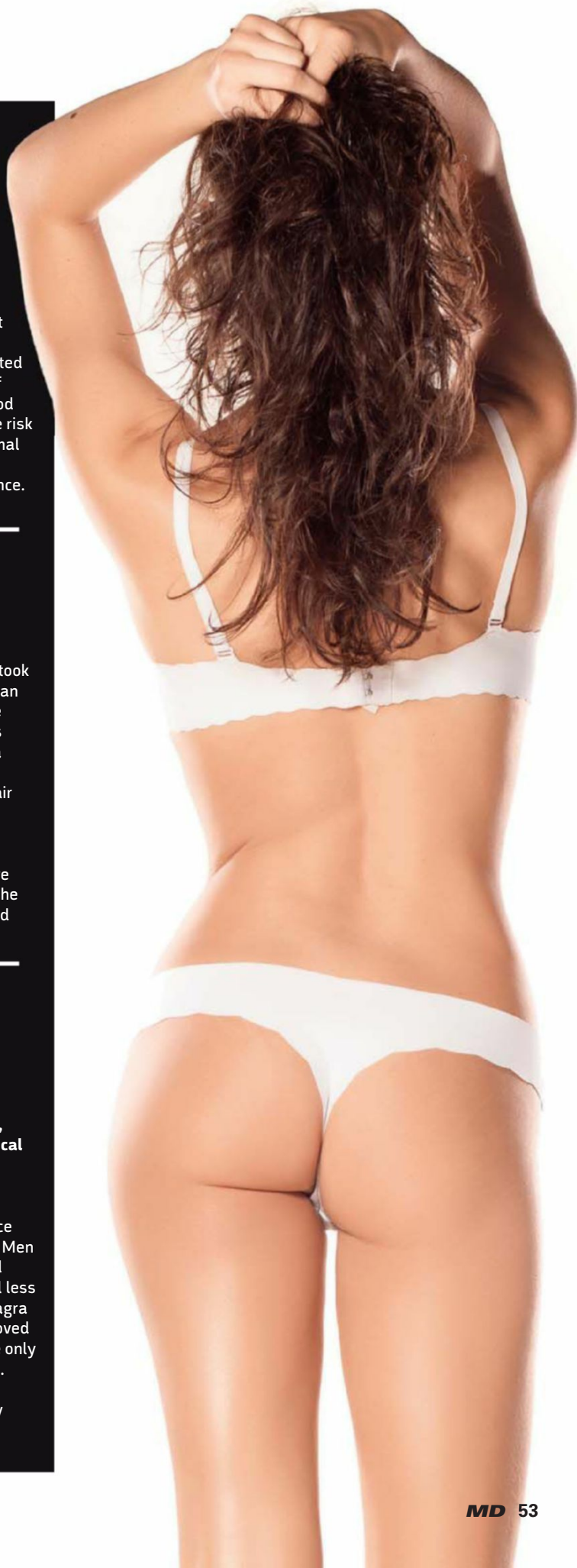
Erectile dysfunction is an early predictor of heart attack and stroke. Disease-promoting changes in the small blood vessels of the penis occur earlier than in the larger vessels supplying the heart and brain. Turkish researchers found that a high cardiometabolic index was a good predictor of erectile dysfunction and cardiovascular disease. The index is calculated from waist circumference, body mass index (the proportion of weight to height) and the ratio of triglycerides to HDL (the good cholesterol). Each of these measures assesses heart disease risk factors such as abdominal fat deposition, obesity and abnormal blood fats. Men with a high cardiometabolic index are more likely to suffer heart attacks and decreased sexual performance. (Kaohsiung Journal of Medical Sciences, 32:620-623, 2016)

SEXUAL SIDE EFFECTS of Anti-Baldness Medicines

Finasteride, sold as Proscar and Propecia, is widely used to treat male-pattern baldness. It works by decreasing dihydrotestosterone (DHT) levels. A study of 1,390 men who took finasteride and 20,000 control subjects, led by Mahyar Etminan from the University of British Columbia, found that finasteride promoted erectile dysfunction and decreased sex drive for as long as one year after men stopped taking the drug. The data on finasteride is particularly interesting to bodybuilders who take anabolic steroids and sometimes have problems with hair loss. Finasteride decreases DHT but causes large increases in estrogen. DHT does not influence muscle hypertrophy, but it affects the brain and sex organs and can influence athletic performance. Using finasteride to prevent hair loss might have negative sexual consequences for men. (Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy, published online September 19, 2016)

Once-Daily Treatment With Cialis Helps Treat PREMATURE EJACULATION

Premature ejaculation (PE) is the most significant sexual problem in men— more prevalent than erectile dysfunction, lack of sexual desire, delayed or inhibited orgasm, or physical abnormalities of the penis. Cialis (tadalafil) is a popular drug for treating erectile dysfunction and promoting sexual performance. Cialis may help men fight erectile dysfunction and premature ejaculation— according to a study from Derince Training and Research Hospital in Kocaeli province in Turkey. Men who took five milligrams of Cialis per day for a month showed improvements in ejaculation times, but the changes were still less than healthy control subjects. Israeli scientists found that Viagra (similar to Cialis) with the antidepressant Paxil not only improved erections but prevented premature ejaculation. Scientists are only beginning to understand the causes of premature ejaculation. Sadly, only 12 percent of men with PE seek professional help, largely because there is no quick fix for the problem. (Urology International, published online May 4, 2016)



BETTER ABS, BETTER SEX

It doesn't matter if you were naughty or nice; better abs and better sex did not magically appear over the holidays. Both are hallmarks of a youthful, vigorous, physically active and healthy body. Unfortunately, as attributed to humorist George Bernard Shaw, "Youth is wasted on the young." Not only that, but changes in lifestyle and social trends now encourage obesogenic behavior, and body types that are associated with metabolic disorders and other increased health risks.

Consider the motivation to trim the waistline and improve torso tone if the results weren't just a "beach body," but also allowed for better sexual function and satisfaction! Is it wrong to pursue a healthy goal if part of the intent is to receive pleasure? No, reinforcing a positive behavior generally improves participation and compliance. So, get ready to crunch, plank and Kegel your way to better sex.

CREATING YOUR SIX-PACK

What creates a great set of abs? Opinions vary, but generally the torso is tapered (V-shape for men, hourglass for ladies); skin is smooth without folds or dimples; and musculature is apparent. Some people are attracted to extremes in leanness, with chiseled obliques as part of the package; others prefer a slightly softer look that is not intimidating, offering shape and contour rather than definition. Certainly, there are very strong individuals with incredible "abs" who carry a significant amount of central body fat (abdominal fat, including under the skin (subcutaneous) and surrounding the organs of the abdomen (visceral)). There are also very slender people who have poorly developed "core" muscles. Great abs require the combination of both well-developed core muscles and a healthy level of subcutaneous and visceral fat. Sorry, this means that nutritional discipline and physical effort are required—putting great abs out of the reach of the majority of U.S. adults unless they alter their lifestyle.

Appropriate diets and training are discussed in many sources; there are so many options that a personalized approach can be developed for most physically capable people. Yoga, calisthenics, CrossFit and even activity-based video games can provide all the physical stimulation needed if the diet and lifestyle are well-managed.^{1,2} For many workers, labor performed on the job is more exhausting than any fitness class. Depending upon the current state of each individual, the diet may need to be hypocaloric to support fat loss, and should include an adequate amount of protein to support lean mass.^{3,4} It need not be ketogenic or even low-carb, but low-fat diets should be avoided. The Mediterranean or Zone Diet plans are wonderful options for those who consume meals with family or in social settings that don't abide by low-glycemic load guidelines.

BENEFITS IN THE BEDROOM

So, what benefits are generated by developing and maintaining great abs, benefits that transfer to the bedroom? Of course, there is enhanced cosmetic appeal, and who does not want to be more attractive to one's spouse or mate? There is often greater self-confidence, particularly when one is naked, even increased respect from one's partner for the positive change accomplished through effort and dedication. It is likely that your partner will get a boost in social standing (and have more satisfying orgasms) by having the mate who looks better, younger or just hotter—especially ladies, if her friends notice.⁵ Be aware, though,

that the changes are best experienced when shared as a couple.⁶ If only one person makes dramatic changes, often the other becomes challenged, suspicious or self-conscious of his/her physical appearance, all of which can negatively affect a relationship.⁷ Always be sensitive and communicate if you are involved in an intimate relationship.

Beyond that, there are many "hidden" metabolic benefits attained following the lifestyle that provides great abs. Once, this was the norm, but now it is the exception. The prevalence of overweight/obesity, especially central obesity, makes evident the role that one's diet, activity and sleeping patterns play in promoting health. Remember, the need for sex in the population is to procreate (i.e., have children); for the individual



IS IT WRONG TO PURSUE A HEALTHY GOAL IF PART OF THE INTENT IS TO RECEIVE PLEASURE?

it is pleasure and bonding. If the conditions are not optimal to a healthy pregnancy and raising children, the body begins to reduce the desire and ability to be sexually active. Think of a time you were financially stressed, arguing with your mate, physically ill or injured, etc. Were you feeling sexy? Now think about your body. If it is under attack by chronic inflammation, hormonal imbalances, vascular damage or excess mass, do you think your body is feeling as "sexy" as it might in a healthy condition? This is not to say that overweight/obese people do not deserve/experience/enjoy sexual activity and relationships. Hopefully, it illustrates why a person's lifestyle affects one's health and qualities we too often take for granted.

BETTER ORGASMS

So, let's run down the great abs lifestyle benefits in general: improved mental health, insulin sensitivity, cellular energetics, vascular response, erectile function, cardiovascular fitness, hormonal optimization and more intense orgasms, etc. Yes, the orgasm quality is improved for men and women.^{8,9} These effects are a matter of the "machine" being maintained well throughout life. Abuse of alcohol or drugs, overeating or poor dietary selection, stress, variable sleeping patterns, sedentary lifestyle, etc. all combine to alter these functions. In the absence of significant disease, great abs can be achieved by following the same guidelines that lead to improved health.

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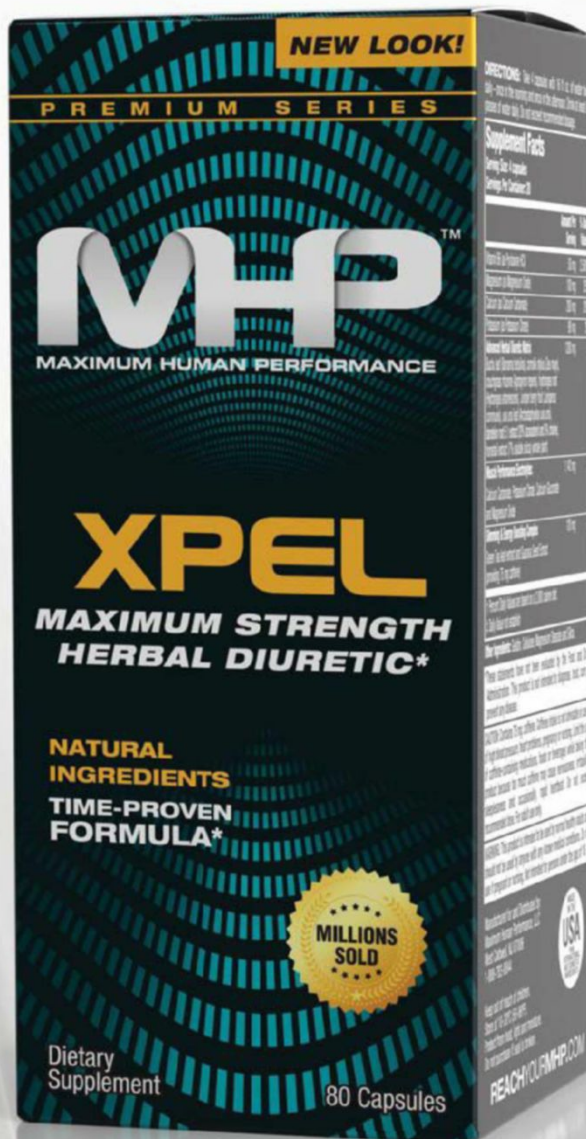
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Allow for a few specifics of these shared benefits. Reducing body fat decreases inflammation, which is a core factor in endothelial dysfunction. This means that the blood vessels that dilate to produce an erection are damaged when inflammation affects them, so when obesity is avoided or corrected, the body is more capable of responding to arousal. Fat cells generate a hormone called leptin that is vital and beneficial in healthy amounts. However, in obesity, leptin concentration rises as the body becomes resistant to its message. Leptin works against another hormone called melanocortin. Melanocortin derivatives are being developed as drugs to boost metabolism, libido and even generate a tan—the first product was called the “Barbie Doll drug.” Obviously, lowering leptin would allow melanocortin to be more active.

PRACTICE HEALTHY SEX

Exercise not only reduces body fat, but it also improves the cardiovascular status. Though intercourse and foreplay may often be short-lived, they can also be extremely taxing and strain the heart. For the physically inept, intercourse is a risk factor for a heart attack.¹⁰ Despite this, sex does not burn enough calories to be considered exercise.¹¹ Thus, promoting a cardiovascular component is critical not only to develop better abs (for better sex), but also to survive the encounters.

Severe dieting or excessive aerobics are not the way to better abs. Too much of either can actually reduce testosterone levels and impair mood.^{12,13} Resistance exercise is necessary to strengthen the core muscles and build the physique. In fact, back pain is a common condition that interferes not only with sexual pleasure, but also with sexual ability. For those who do suffer from back pain, there are sexual positions that are more amenable. The position referred to vulgarly as “doggy-style” places the least back strain on both partners.^{14,15} Beyond the core, strengthening the limbs may allow for more acrobatic interplay.

Further factors are present, including: improving insulin sensitivity through exercise, which allows for easier fat loss; increasing testosterone and other growth factors; and endocrine control. Though space does not allow for a thorough discussion, suffice it to say that what supports a healthy physique supports the ability to engage in sexual activity. It is fascinating that many of the actions of Viagra-like drugs support many of the functions that lead to great abs as well (e.g., increased testosterone production, reduced visceral fat, vascular function, etc.).

So, as the winter months wane, and you prepare for the shirtless days of summer, use this as a motivation to be more disciplined about your diet, exercise and lifestyle. After all, what good is sacrifice without reward?

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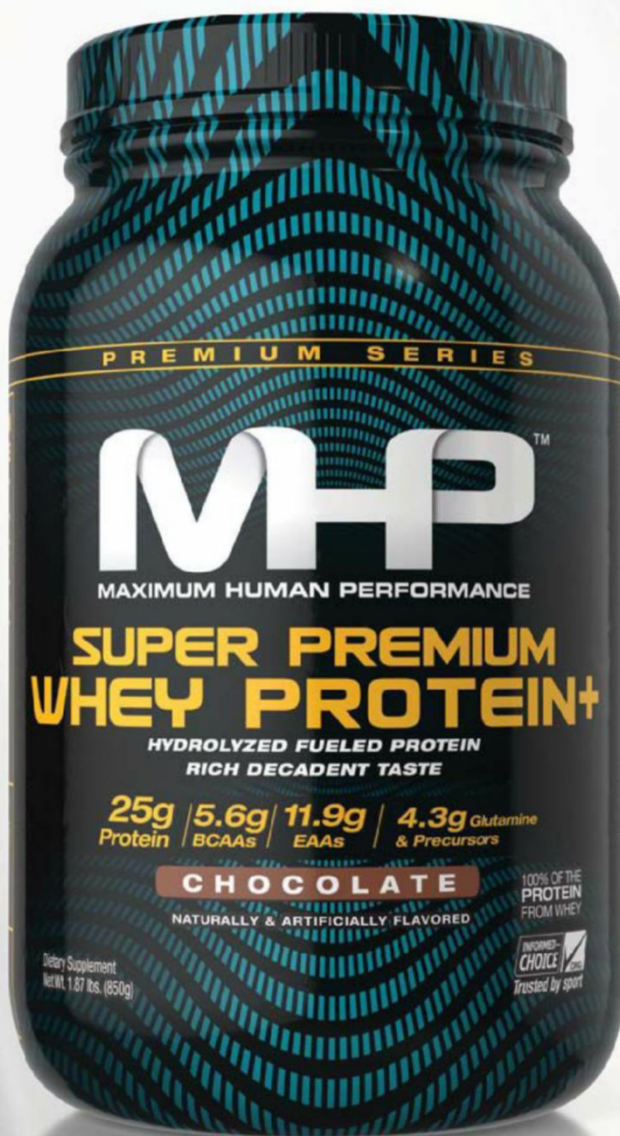
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DO KETONE SUPPLEMENTS BOOST MUSCLE?

Nutrition is plausibly the most important component of any training program. An effective nutritional plan promotes the most efficient adaptations to resistance training and endurance exercise, providing optimal results. In the past, athletes and bodybuilders have tried to improve their builds by implementing a ketogenic diet high in fat intake at 80 percent of total caloric intake, low in protein at 15 percent intake, and even lower in carbohydrate consumption at about five percent of total calories. The fundamental concept behind the ketogenic diet is to coax the body into burning fat rather than carbohydrate or protein, because of the dearth of carbohydrate and protein in the diet. The excessive fatty acid oxidation that results from ketogenic diets ultimately leads to the production of ketone bodies, or ketones, which are believed to possess appetite-suppressant properties, thus facilitating caloric restriction and even further loss of body fat.

KETOGENIC DIETS DRIVE MUSCLE LOSS

While ketogenic diets can cause weight loss, one of the major drawbacks of the ketogenic diet for any athlete, or bodybuilder, is that a significant percentage of that bodyweight lost is muscle mass. This negative aspect of the ketogenic diet occurs even though the body typically prefers to burn carbohydrates, or fat, for energy instead of muscle protein, even during times of reduced caloric consumption. Yet, for some reason, ketogenic diets generate a greater preference to burn muscle protein as an energy source. This phenomenon appears to be partially caused by the poor regulation of the nutrient-sensing molecule mTOR from the consumption of the high-fat, low-carbohydrate and low-protein ketogenic diet.

During times of energy surplus, an activated mTOR turns on protein synthesis in muscle cells, leading to enhanced muscle growth and strength. During energy deficits, the inactivated mTOR leads to diminished muscle protein synthesis, potentially leading to muscle atrophy. The consumption of the ketogenic diet has been shown to diminish specific hormones and anabolic growth factors that are known to activate mTOR. This negative influence on mTOR leads to the inhibition of muscle protein synthesis, ultimately producing significant loss of muscle mass and strength. In fact, studies like the one performed by McDaniel et al.¹ clearly show the negative impact of ketogenic diets on mTOR function. In this study, the researchers demonstrate that low-carbohydrate ketogenic diets significantly diminish insulin action, and this lack of insulin signaling weakens mTOR's ability to stimulate muscle protein synthesis.

GREATER EXERCISE ENDURANCE

While ketogenic diets are evidently a poor choice for those looking to improve muscle size and strength, certain ketone esters—such as beta-hydroxybutyrate—are now available

KETONE SUPPLEMENTATION MAY NOT BE SUITABLE FOR HIGH-INTENSITY WEIGHT TRAINING, AS KETONE INTAKE DIMINISHED GLUCOSE USE FOR ENERGY IN FAVOR OF FAT AND KETONES. WHILE THAT MAY BE BENEFICIAL FOR LOW-INTENSITY ENDURANCE TRAINING, IT IS DISADVANTAGEOUS FOR HIGH-INTENSITY RESISTANCE TRAINING.



as nutritional supplements that can also trigger ketosis without requiring the use of muscle-depleting ketogenic diets.² Some of these ketones function as an alternative fuel source to carbohydrates and fat. In fact, these ketones can be utilized for energy by muscle tissue during exercise³, meaning that ketone supplementation conceivably improves energy levels within muscle tissue during exercise for better exercise performance while performing endurance training, as this form of training typically requires more energy.

To see if exercise endurance could be altered by ketone consumption, a study by Cox et al.² looked at the influence that ketone intake had on time trial performance of eight highly trained endurance athletes riding an ergometer bike. The results of the study showed that ketone intake improved time trials by two percent when consuming ketones, which is a significant percentage considering that each test subject was a well-trained athlete. So, any appreciable improvement in performance is notable. Along with increased endurance, ketone intake also decreased blood lactate levels considerably—further illustrating the fatigue-resistance influence of ketone intake as the buildup of lactic acid, because lactate tends to inhibit muscular

function, promoting fatigue. After exercise, there were also several biochemical indicators revealing that ketone intake suppressed glycolysis rates within the muscle cell, explaining the lower lactic acid buildup seen in each test subject, as lactic acid can be produced during glycolysis.

Moreover, ketone intake also increased the level of fat oxidation within the muscle cell, as intramuscular triglyceride levels dropped by approximately 25 percent two hours after exercise. Intramuscular glycogen content was also less depleted after training in the ketone-ingesting group. Taken together, these results reveal that ketones and fats were preferentially oxidized after ketone use, which spared glucose and glycogen in the muscle cell, likely contributing to the greater endurance capacity seen in this study after ketone use.

KETONE SUPPLEMENTS ARE NOT WELL-SUITED FOR HIGH-INTENSITY TRAINING

While greater endurance from ketone consumption is evident, the study by Cox et al.² also suggests that ketone supplementation may not be suitable for high-intensity weight training, as ketone intake diminished glucose

use for energy in favor of fat and ketones. While that may be beneficial for low-intensity endurance training, it is disadvantageous for high-intensity resistance training. This is true because high-intensity weight training preferentially uses fast-twitch muscle fibers⁴, which strongly prefer carbohydrates, such as glucose and glycogen, as their energy source instead of fat. Consequently, decreased glucose usage triggered by ketones indicates that ketone supplements are more appropriate for improved aerobic capacity rather than enhanced size and strength.

The bottom line is that ketone diets and supplements are not suitable for high-intensity training and improving muscle size and strength.

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It pretty much goes without saying that men get in shape to attract a mate. Thus, men will do just about anything to get rock-hard abs.

Hundreds of supplements on the market cater to the sex-hunting dieter. When he succeeds in attracting his mate, he also needs to be able to *get* rock-hard to please his partner. It's common knowledge that if you have trouble getting rock-hard, there are drugs like Viagra or Cialis that will more than likely help. When these don't work or he just can't get the drugs, he needs to head out to the local GNC and pick up some yohimbine.

WHAT IS YOHIMBINE?

Yohimbine is a stimulant with diverse effects on the central nervous system and on tissues throughout your body. Yohimbine acts through blocking alpha-2 adrenergic receptors. You might say, "Blocking? But I thought yohimbine was a stimulant." Alpha-2 adrenergic receptors actually block the release of stimulatory chemicals like noradrenaline (norepinephrine) at nerve endings. Thus, it is an inhibitor of a receptor that blocks stimulation. Get it? A double negative leads to a stimulant effect. Yohimbine's actions on the central nervous system are so strong that it is used to induce anxiety attacks by psychiatrists to study cognitive behavioral therapy. However, yohimbine's effects on the body make it very useful for the horny bodybuilder.

Yohimbine is utilized in two types of supplements: fat burners and "male performance enhancers." Perhaps the most popular are the fat-burning supplements, as these are used by both men and women. Yohimbine has a stimulant effect that helps mobilize fat from its stores. When combined with other stimulants, yohimbine can have a synergistic (greater than just additive) effect. This is why yohimbine is often found in combination supplements with stimulants like caffeine and synephrine.



YOHIMBINE HAS THE POTENTIAL TO INCREASE NITRIC OXIDE IN THE PENIS AND POTENTIATE THE ACTIONS OF VIAGRA.

THE RESEARCH

Laboratory studies performed in the '80s and '90s demonstrated that the activation of alpha-2 adrenergic receptors inhibited the release of fat from storage.¹ Similarly, studies showed that estrogen caused subcutaneous storage of fat by increasing the number of alpha-2 adrenergic receptors in fat cells.² Subsequently, it was theorized that inhibition of alpha-2 adrenergic receptors by supplementation with yohimbine could help mobilize and burn fat from storage.

A human study on yohimbine performed in 1988 provided subjects with a dose of 0.2 milligrams per kilogram of bodyweight and

observed its effects on fat release from storage.³

This study demonstrated that yohimbine mobilized fats in the fasting state, which was reinforced by exercise, but its action was abolished by eating a meal. Interestingly, even at this relatively high dose of yohimbine, it did not cause a significant elevation in heart rate or blood pressure.

Follow-up studies examined if the stimulant and fat-mobilizing effects of yohimbine might improve athletic performance. In a study using male soccer players, a dose of 20 milligrams daily for three weeks failed to improve muscle mass, strength or exercise performance.⁴

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YOHIMBINE IS CAPABLE OF GETTING YOUR BODY HARD IN MORE WAYS THAN ONE.

However, the soccer players did lose a significant amount of body fat during the three-week trial. Perhaps yohimbine's stimulant effect affects another type of performance?

Yohimbine has been used for its presumed aphrodisiac properties for centuries, and science gives this some merit. In order to achieve erection, there is a complex interaction between the central nervous system (your brain) and the blood vessels in the penis. If you are psychologically stressed out or you have blood flow problems, you are likely to experience erectile dysfunction. Viagra is a drug that increases nitric oxide in the penis, resulting in more blood flow to produce an erection. Unfortunately, Viagra doesn't work for everybody.

Alpha-2 adrenergic receptor stimulation on nerves in the penis results in an inhibition of nitric oxide synthesis and release.⁵ Thus, yohimbine has the potential to increase nitric oxide in the penis and potentiate the actions of Viagra by inhibiting those receptors. The erection-producing effects of both Viagra and yohimbine on penile tissue has been confirmed in recent laboratory studies.⁶

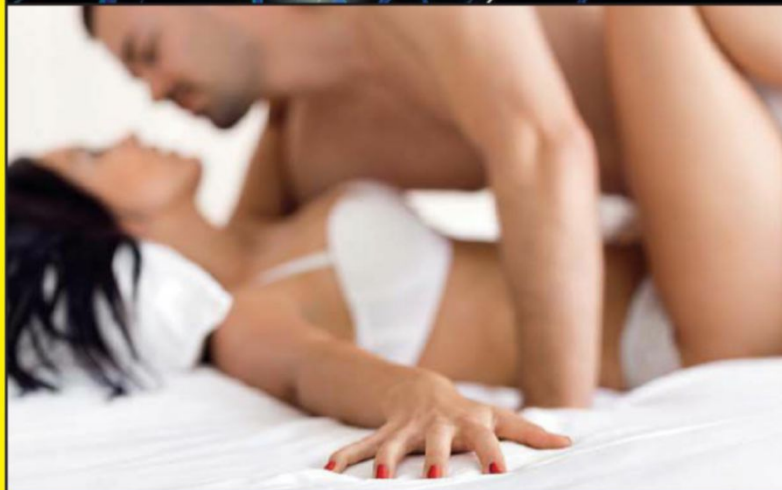
However, scientists believe that yohimbine has an even stronger effect centrally— that is, on the brain. Animal studies consistently demonstrate that yohimbine increases sexual motivation and the pleasure centers of the brain that lead to erection.⁷ Yohimbine is able to increase arousal and potency in rats placed in a stressful situation (immersion into cold water; talk about taking a cold shower).⁶ Furthermore, the combination of Viagra and yohimbine appears to be synergistic in its central nervous system effects and peripheral actions, thus improving sexual performance.

PRECAUTIONS

Yohimbine is a relatively safe supplement, but some must take precautions. If you are on medications such as amphetamines for ADHD or anti-seizure medications, you should avoid yohimbine. Because of yohimbine's strong central nervous system effects, high doses can cause impulsivity and drug-seeking behaviors.⁸ High doses can potentially cause high blood pressure and heart problems, especially if taken with other stimulants.

THE BOTTOM LINE

In summary, yohimbine is capable of getting your body hard in more ways than one. Used in moderation, yohimbine may help you burn more fat and make your body more attractive to your mate. If you are so lucky as to "score," yohimbine can help ensure you are ready to perform.



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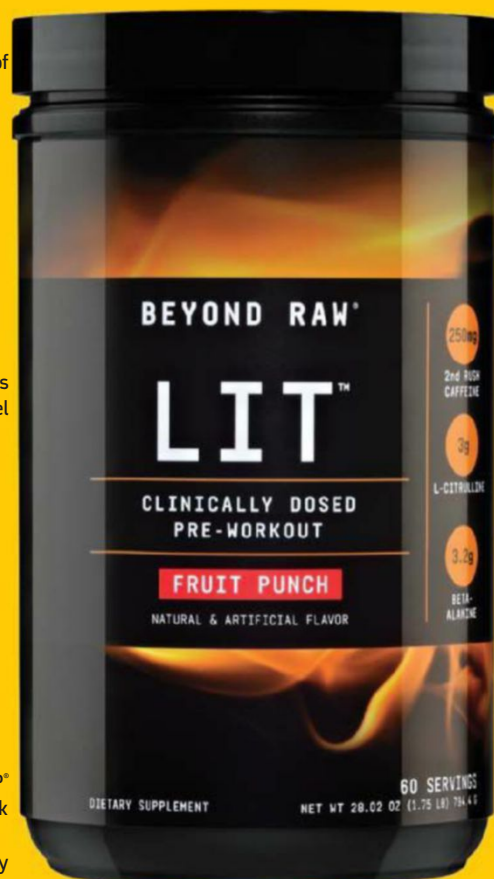
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GET JACKED with VIAGRA!

If you've ever sat down on a Sunday afternoon to watch an NFL football game, you've undoubtedly been exposed to one of those awkward commercials for the erectile dysfunction (ED) drug Viagra. That's because one of the largest demographics watching the NFL are men at the age where impotency might be an issue, and Viagra effectively alleviates this condition. Well, as it turns out, Viagra apparently does more than just mitigate ED, as this drug has also been shown to produce numerous muscle-enhancing effects. That is because Viagra functions by inhibiting the enzyme phosphodiesterase-5 (PDE-5), which normally degrades the signaling molecule cyclic guanosine monophosphate (cyclic GMP or cGMP). The inhibition of PDE-5 by Viagra increases cyclic GMP levels within the body. For those with ED, more cyclic GMP stimulates certain cellular signaling cascades that relax the smooth muscle within the arterial wall, ultimately causing the arteries to open up more, or dilate. The improved vasodilation within the arterial wall increases overall blood flow to the penis, enhancing the ability to obtain an erection. Conversely, elevated cGMP promotes muscular performance by amplifying the body's response to nitric oxide. This happens because cGMP is normally produced in response to nitric oxide, causing many of the effects stimulated by nitric oxide. So, naturally, higher levels of cGMP from Viagra use amplifies the response to nitric oxide.

HARDENED STAMINA AND MUSCLE GROWTH

One performance-enhancing effect brought on by nitric oxide that can be improved by Viagra is greater muscular endurance. The conventional way that nitric oxide improves muscular endurance is by increasing blood

flow to working muscle tissue, providing essential nutrients and oxygen to the laboring muscles while simultaneously removing metabolic waste, which improves muscular endurance. While Viagra probably boosts muscular endurance by improving blood flow to the muscle, this drug also improves stamina by causing the covalent attachment of nitric oxide to certain proteins within the muscle cell, in a process known as nitrosylation. This covalent modification alters the function of each nitrosylated protein, manifesting superior muscular stamina. In fact, one study by Sheffield-Moore et al.¹ showed that healthy male subjects given 25 milligrams of Viagra per day for eight days could complete significantly more repetitions during the knee extension movement, relative to those receiving a placebo. Test subjects who received Viagra also had greater levels of nitrosylated proteins, along with greater levels of muscle protein synthesis, which together likely contributed to their reduced muscle fatigue.

The study by Sheffield-Moore et al. also showed that the increase seen in muscle protein synthesis fueled by Viagra was commensurate with what was observed in other studies where test subjects received 200 milligrams of testosterone per week.^{2,3,4} This is a testosterone dosage that has been shown to increase muscle mass and strength.^{3,4,5} These results indicate that Viagra has a robust anabolic influence that conceivably promotes considerable muscle growth.

ERECT GREATER STRENGTH WITH VIAGRA

The authors of the aforementioned study also note several proteins involved in calcium signaling within the muscle cell had the largest increases in protein expression and protein nitrosylation after Viagra consumption. This phenomenon indicates that Viagra enhances muscular performance, in part, by regulating the influence that calcium has on muscular contraction—as more calcium within the muscle cell at the right time enhances actin-myosin interaction, augmenting muscular contractile forces for improved strength and

VIAGRA HAS A ROBUST ANABOLIC INFLUENCE THAT CONCEIVABLY PROMOTES CONSIDERABLE MUSCLE GROWTH.



GETTY IMAGES

endurance. In fact, one second study by Moon et al.⁶ showed greater nitrosylation of the ryanodine receptor (RyR1)—a protein that controls the release of calcium within the muscle cell—which likely triggered calcium release within the muscle cell, enhancing muscular endurance and strength. In addition, a third investigation by Evangelista et al.⁷ showed that nitrosylation of the muscle protein myosin caused a doubling of force production, further supporting the concept that heightened nitrosylation of specific muscle proteins from Viagra use boosts muscular strength.

TORCH FAT AND GET HARD WITH VIAGRA

In addition to packing on size and strength, Viagra could also help you get lean—as Viagra has been reported to convert white adipose tissue (WAT) into brown adipose tissue (BAT).⁸ This conversion causes an increase in metabolic rate and a reduction in weight gain during high-fat feeding.⁹ The increased metabolic rate occurs because the newly formed BAT has the capacity to thermogenically burn fat, a process that uncouples fat burning with the production of ATP. So, instead of the energy from fat being used to synthesize ATP, the fat is expended as heat, which effectively increases energy expenditure—ultimately increasing metabolic rate and thus loss of body fat.

A NATURAL VIAGRA-LIKE BLEND

Despite the many muscle-building and fat-burning capabilities of Viagra, it is very risky to take Viagra without the consent of a physician, because of the potentially dangerous health effects. In fact, many patients have died from adverse cardiovascular events while using Viagra, even under the guidance of a physician.¹⁰ So, stay away from this drug because it can be very risky. Instead, use a combination of good nutritional supplements that boost nitric oxide and cGMP levels, as this will safely provide many of the physique-enhancing effects triggered by Viagra without the inherent danger of a prescription drug.

One natural compound that strongly inhibits PDE-5 is the flavanol icariin, which is isolated from the epimedium plant, more commonly known as horny

goat weed. Icariin has been shown in many studies to act as a sufficient PDE-5 inhibitor, boosting cGMP^{11,12,13} in a similar fashion to Viagra. What's more, icariin has been shown to improve erections in male rats, demonstrating the biochemical similarity between icariin and Viagra, which indicates that icariin should bolster muscle growth and strength just like Viagra.

The best nitric oxide-boosting compound to co-ingest with icariin is the amino acid citrulline, which is quickly converted in the body into arginine. Because nitric oxide is biosynthesized from the amino acid arginine, citrulline consumption vigorously increases endogenous arginine levels¹⁴, driving nitric oxide production¹⁵ that, when combined with icariin, will substantially improve muscular endurance and strength while simultaneously burning body fat.

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For most of Michael Rudolph's career he has been engrossed in the exercise world as either an athlete (he played college football at Hofstra University), personal trainer or as a research scientist (he earned a B.Sc. in Exercise Science at Hofstra University and a Ph.D. in Biochemistry and Molecular Biology from Stony Brook University). After earning his Ph.D., Michael investigated the molecular biology of exercise as a fellow at Harvard Medical School and Columbia University for over eight years. That research contributed seminally to understanding the function of the incredibly important cellular energy sensor AMPK—leading to numerous publications in peer-reviewed journals including the journal *Nature*. Michael is currently a scientist working at the New York Structural Biology Center doing contract work for the Department of Defense on a project involving national security.

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Is There a Best Rep Range for **MUSCLE GROWTH?**

The “strength-endurance continuum” is a widely accepted concept in the field of exercise science. Simply stated, the theory asserts that training in different rep ranges elicits differential effects on muscular adaptations. From a practical standpoint, the continuum can be categorized into three distinct loading zones— heavy, moderate and light— whereby heavy loads (1-5 RM) promote maximal strength gains, moderate loads (6-12 RM) bring about maximal increases in muscle mass, and light loads (15+ RM) produce the greatest improvements in local muscular endurance.

A considerable amount of research has been conducted on the strength-endurance continuum, and there is now good evidence that heavy loads do indeed promote the greatest increases in strength while muscular endurance is optimized with the use of light loads.^{2,7,9} However, the claim that moderate-rep training is superior for maximizing muscle size has come under scrutiny, with a number of studies showing that training across a wide spectrum

of rep ranges can be equally effective from a hypertrophy standpoint.⁶

A big issue with the body of research on the topic has been a paucity of studies carried out in individuals with resistance-training experience. It is well established that experienced lifters respond differently to training compared to non-lifters. This is due to a “ceiling effect,” whereby gaining muscle becomes progressively more difficult as you get closer to reaching your genetic potential.¹

Several years ago, I published the first study to investigate the effects of different rep ranges on strength and hypertrophy changes in resistance-trained men.³ In brief, the study randomized subjects to either a “bodybuilding-

type” routine that trained with moderate reps or a “powerlifting-type” routine that trained heavy. The routines were equated for volume load (i.e., the total amount of weight lifted per session) so that the bodybuilding group performed three sets of 10 reps while the powerlifting group performed seven sets of three reps. Consistent with the “strength-endurance continuum,” the study found that the powerlifting-type routine produced the greatest strength increases. Contrary to the theory, however, both routines produced similar increases in hypertrophy of the biceps brachii.

It must be pointed out that the findings of that study are specific to the respective routines being equated for volume load.

THERE IS EVIDENCE THAT TRAINING ACROSS THE FULL SPECTRUM OF REP RANGES MIGHT PROMOTE THE GREATEST INCREASES IN GROWTH, SO SYSTEMATICALLY VARY YOUR LOADING ZONES OVER TIME.



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THE M.A.X. muscle plan

While this design helped to rule out potential confounding issues and thus isolate the impact of loading zones on hypertrophy, it is impractical to carry out long-term training with very heavy loads at the volumes used in that study (in fact, the majority of subjects in the powerlifting-type group displayed clear signs of overtraining by study's end). So the question arises as to whether results would differ if an equal number of sets were performed between heavy and moderate loads?

Recently, I carried out a study that investigated this very topic.⁸ Here's the lowdown on what we found.

Nineteen college-aged men, who had been lifting consistently for at least a year and regularly performed both the squat and bench press, were recruited to participate in the study. Subjects were randomized to either a group that trained in a heavy loading range of two to four repetitions per set (HEAVY) or a group that trained in a moderate loading range of eight to 12 repetitions per set (MODERATE). All other aspects of the routines were controlled

was greater when performing a moderate-rep routine compared to heavy lifting. Increases in thickness of the elbow flexors (i.e., biceps brachii and brachialis) favored the use of moderate reps (~5% versus ~3%), while gains in the quads were markedly greater with moderate-rep training (10% versus 4%). Interestingly, growth of the triceps was similar between groups.

On the other hand, strength gains were superior for heavy-load training. In particular, improvements in the 1RM squat were decidedly greater in HEAVY compared to MODERATE (29% versus 16%). Changes in the 1RM bench press also favored the use of heavy weights, although the differences between HEAVY and MODERATE were less substantial (14% versus 10%). Muscle endurance increases were similar between rep ranges.

At face value, the findings lend support to the concept of a strength-endurance continuum and reaffirms that a "hypertrophy range" of six to 12 reps per set maximizes muscle growth. This is consistent with what gym bros have

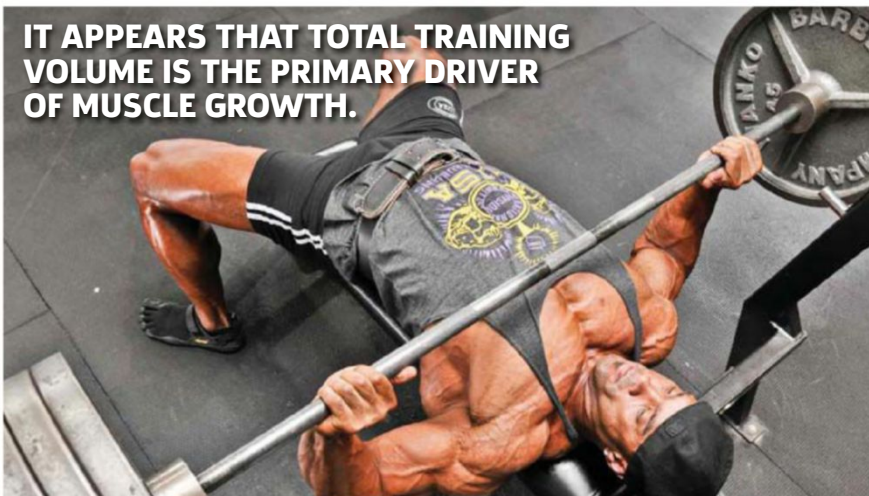
The study had several limitations including a relatively small sample size, the use of a single-site measurement for muscle growth on each of the respective muscles, and possible confounding from the "novelty factor" (i.e., virtually all the subjects trained with moderate loads, so it is possible that the novel stimulus for those in the heavy-load group might have impacted results). These issues must be taken into account when attempting to draw evidence-based conclusions. Most importantly, one study is never the be-all and end-all when it comes to answering questions on an applied science topic. Rather, each study should be considered a piece in a puzzle that lends support to a given theory; with respect to the strength-endurance continuum, more research is certainly needed to fully understand its practical implications for program design. For now, though, the evidence suggests to train heavy if your goal is maximal strength, and to focus on accumulating volume for maximal gains in muscle mass. Moreover, there is evidence that training across the full spectrum of rep ranges might promote the greatest increases in growth^{3,4}, so systematically vary your loading zones over time.

Brad Schoenfeld, Ph.D., CSCS, FNSCA is widely regarded as one of the leading authorities on training for muscle development and fat loss. He has published over 100 peer-reviewed studies on various exercise- and nutrition-related topics. He is also the author of the best-selling book, *The M.A.X. Muscle Plan* and the seminal textbook, *Science and Development of Muscle Hypertrophy*. Check out his website and blog at www.lookgreatnaked.com

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IT APPEARS THAT TOTAL TRAINING VOLUME IS THE PRIMARY DRIVER OF MUSCLE GROWTH.



between groups. The training protocol consisted of seven exercises that worked all the major muscles of the body each session, with three sets performed per exercise. Training was carried out on three non-consecutive days per week for eight weeks. Subjects were instructed to maintain their normal daily nutritional intake, and no differences in either calories or macronutrient consumption were found between groups over the course of the study.

Testing was carried out pre- and post-study. Ultrasound was used to measure muscle growth of the elbow flexors, elbow extensors and quads. Upper and lower body strength was assessed via the one-repetition maximum (RM) in the squat and bench press. Upper body local muscular endurance was determined by assessing the subject's initial 1RM in the bench press for as many repetitions as possible to muscular failure.

Results showed that overall muscle growth

been preaching for years. However, when the results are considered in conjunction with my previous study that equated volume load, an interesting hypothesis emerges. Since strength gains were greater with heavy loads in both studies, it can be concluded that low-rep training is best for maximizing strength regardless of volume load. On the other hand, since the previous study showed no differences in hypertrophy between conditions when volume load was equated, it can be inferred that volume load is a greater driver of muscle growth irrespective of the rep range. In other words, strength is maximized even with lower training volumes, provided heavy loads are used, but higher volumes are needed to maximize gains in size regardless of whether you train with moderate or heavy weights.

Take-home point: It appears that total training volume is the primary driver of muscle growth.

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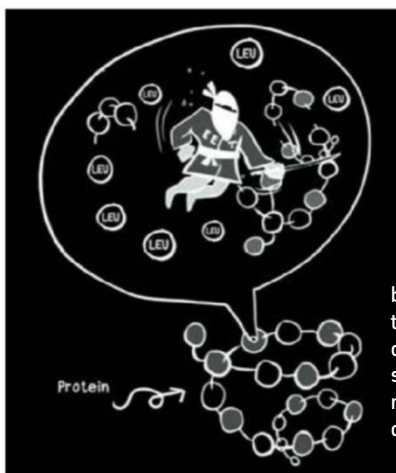
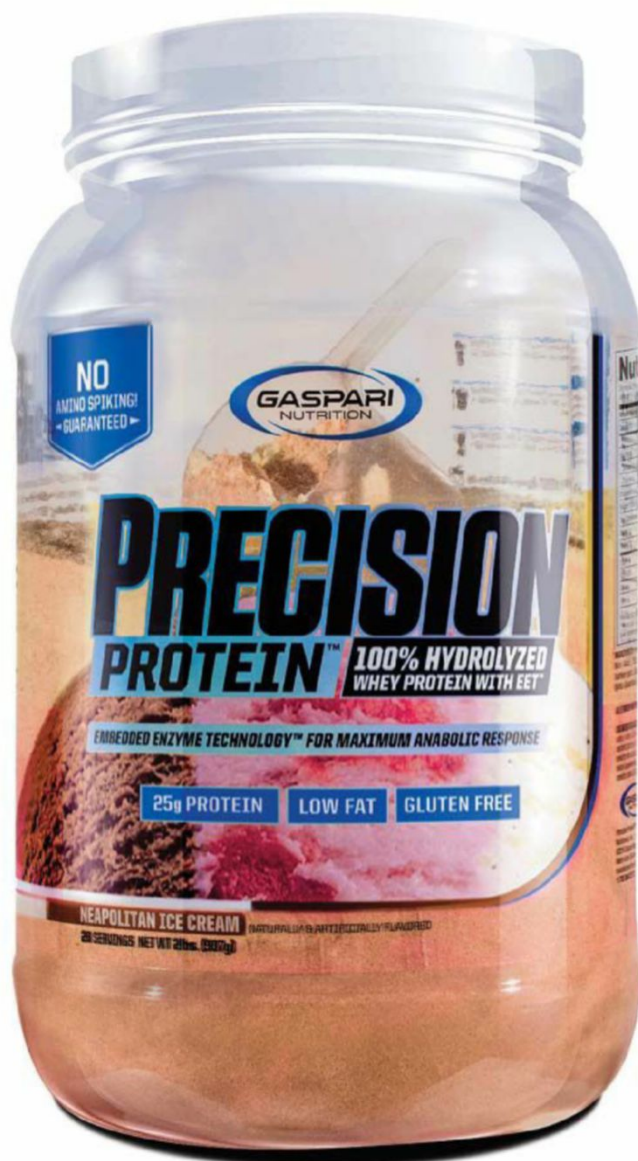
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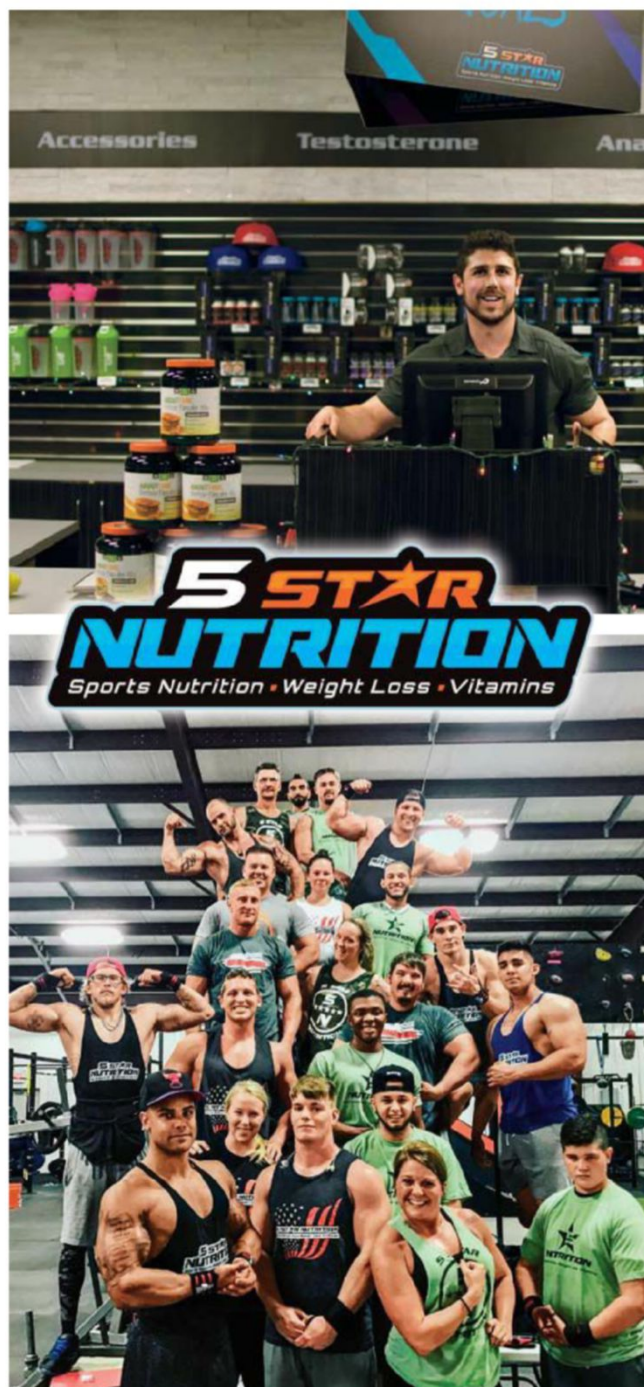
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9 GOALS THAT WILL TRANSFORM YOUR PHYSIQUE!

USE THE POWER OF GOAL SETTING TO GROW IN 2017

BY RON HARRIS, PHOTOGRAPHY BY PER BERNAL

A goal can be thought of as a destination. Where do you want to go? When you get in your car, you almost always have a distinct destination in mind, as well as a time you want to arrive there. You need to be at work by 9, at the gym by 6, get to Costco before it closes at 8, and so on. If instead you turn the ignition and just start driving with no particular place in mind or any time you need to be there by, you're just going to waste a lot of time and gasoline before you wind up home— exactly where you started from. Bodybuilding isn't so different. Unless you are constantly working toward a specific goal or goals, you're spinning your wheels. Any chances of improving your physique are remote, though you may very well be able to maintain what you've built thus far. If that's fine with you, cool. But I am willing to bet that for most of you, you're not entirely satisfied with your physique and you know you haven't reached your full potential yet. I'm 47 freaking years old with 33 years of training down, and I'm still not satisfied! The keys to success in any endeavor are to set a goal you are passionate about, give yourself a deadline to achieve it by, develop a game plan to reach that goal and then follow through. Here are nine goals that can all help you make significant improvements to your physique.





THE KEYS TO SUCCESS IN ANY ENDEAVOR ARE TO SET A GOAL YOU ARE PASSIONATE ABOUT, GIVE YOURSELF A DEADLINE TO ACHIEVE IT BY, DEVELOP A GAME PLAN TO REACH THAT GOAL AND THEN FOLLOW THROUGH.

1. SET A BODYWEIGHT GOAL

Ask any guy what his goals are for the off-season, and most of the time you will get the vague response, “get bigger.” The problem here is the vague nature of the goal. How much bigger? The amount needs to be quantified, and the simplest way to do that is to put it in terms of a specific bodyweight. Let’s say you are 220 pounds. You want to gain mostly lean muscle tissue, so unless you’re a raw novice, forget about outrageous amounts like 20 or 30 pounds. Assuming you have been training for at least a few years, a total weight gain of 10 pounds is far more realistic, and a time frame of 12 weeks to do it is reasonable. That equates to a gain of a little less than a pound a week, and we are going to be real here and further assume that about two-thirds of the weight gain will be in the form of muscle, and the remainder will be fat. Now we’re looking at gaining a little less than half a pound of muscle per week. You can do that! Adjust your training, and more importantly, your diet, accordingly. Check your weight every week. If it isn’t slowly creeping upward toward 230, train harder and up your calories! Six or seven pounds of brand-new muscle is a very significant accomplishment for an experienced trainer.

2. SET A BODY FAT GOAL

Not all of us have a hard time putting on size and weight. There are also those among you who do those things without extraordinary effort. You have probably been big and bulky since your earliest lifting days. But you may also have been “husky,” chubby or even outright fat most of your life, too. You have an appreciable amount of muscle packed on your frame, yet you’ve never had a good look at it. It’s always been obscured by a layer of adipose tissue. Now is the time to get your body fat tested, and decide how much of that you want to lose, as well as a deadline to lose it by. This deadline might coincide with something meaningful to you, like a vacation, a high school reunion or even the first day of summer. How much leaner you want to get is up to you. Let’s say you find you are 35 percent body fat. How good do you want to look? By the time you get to 15 percent, the changes in your appearance will be dramatic. Your face will be more sculpted, and the true shape of your muscles will finally start to show through. Should you decide to get down to 10 percent, you will look pretty damn great. You’ll be able to see your abs, maybe for the first time! As with weight gain, fat loss should conform to a realistic timeline. Going from 35 to 10 percent body fat would take most men a good six months, assuming you do it the right way rather than embark on a starvation diet along with three hours of cardio a day. And again as with a weight gain goal, the best course of action would be to get your body fat tested at regular intervals to ensure you are headed in the right direction.

3. GET STRONGER ON A KEY LIFT OR LIFTS

Odds are that if you have been training for a number of years, your lifts have been stuck at the same numbers for a very long time. Are you OK with that? My guess is that you've accepted it, but you're not thrilled with the longstanding plateau. Now is the time to decide which one or two lifts you want to get stronger on. Before you dismiss this whole goal as being impossible, ask yourself this: How much attention, in terms of time, did you ever apply toward improving this lift? I ask because as bodybuilders, many of us are locked into the paradigm of training each body part once a week. Thus, you have probably only been bench-pressing once a week, or squatting once a week. No athletes in the pure strength sports like powerlifting or Olympic lifting train their lifts that infrequently. Olympic lifters typically work on their lifts every day—sometimes two or three times a day! If you set aside a block of time and work that lift hard, three times a week for 10-12 weeks, you can bet you will get stronger on it, even if you've been stuck at the same weight for five to 10 years. And if you can manage to increase your max squat from 405 to 455 in those weeks, for example, that strength will carry over to being able to handle heavier weights for reps once your strength cycle is over. Result? Bigger legs!

4. INCREASE A MEASUREMENT

Speaking of bigger, when we talk about improving a body part such as the arms or legs, one very clear marker of said improvement (assuming gains are not all in the form of body fat) is to increase its measurement. When your goal becomes as distinct as taking your 18.5-inch arms and turning them into legit 19-inch guns, your goal couldn't be any more explicit. It's also very simple to gauge your progress toward that goal on a weekly process, just by using a tape measure. Just be sure you always measure in the same place around the muscle in question, and under the same conditions. Your best bet for an accurate reading is flexed but "cold," meaning no pump at all. Or, you could also choose to only use pumped measurements as your guide. Some will argue with you about this, as they feel there are "rules" that must be adhered to, but this is your body and your goal. Do whatever you prefer.

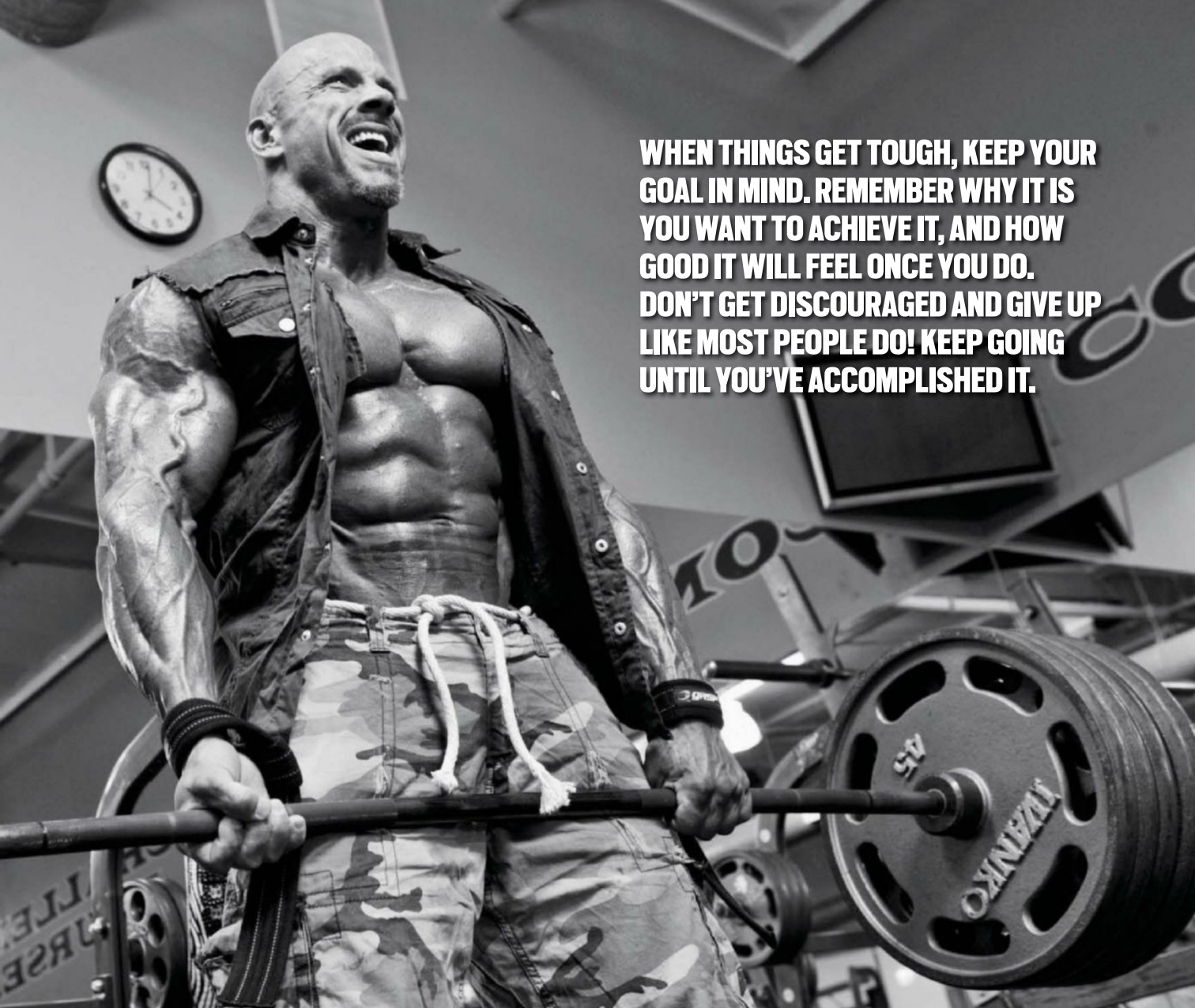
5. DECREASE A MEASUREMENT

Being bodybuilders, we usually have no interest in reducing the size of our arms, legs, chest or calves. But when it comes to our waists, how many of us would love to see a smaller number? Can I see a show of hands? Don't worry ... my hand is up there, too. Though it's closely related to our body fat percentage, which we already touched on, there is also something very concrete and satisfying about being able to fit into a pants size that you haven't been able to in a while. I would bet most of you out there have different jeans you wear when you're lean as opposed to jeans you rock in the off-season. Am I right? If you spend most of the year in 34s or 36s, set a goal to be able to fit into your 32s or 34s. You know that by the time you can slide into those comfortably, the rest of you is looking splendid, too.

6. IMPROVE A BODY PART

Here's one that really hits home for just about all of us. I know you have at least one muscle group that you're not satisfied with. It may lag behind the rest of your physique, or it could truly suck. What are you doing about it? Just "training it harder" is again too vague a plan to produce tangible results. Instead, you need to set aside a given block of time with a deadline at the end. During this time, which could be eight, 10, 12 or 16 weeks, you must prioritize that body part. Hit it twice a week with two different types of workouts, such as heavier for straight sets the first time, and more drop sets, higher reps and supersets at the second weekly session. For legs, you could do a quadriceps-dominant workout one day, and a second workout focusing more on hamstrings. Introduce new exercises and techniques. The bottom line is that during the specialization phase, you need to hit that body part with something different than what you've been doing. And even if you thought you were training that area hard before, you'll find that this extra level of attention and the pressure of days ticking down toward a deadline will take your workouts up a few notches.





WHEN THINGS GET TOUGH, KEEP YOUR GOAL IN MIND. REMEMBER WHY IT IS YOU WANT TO ACHIEVE IT, AND HOW GOOD IT WILL FEEL ONCE YOU DO. DON'T GET DISCOURAGED AND GIVE UP LIKE MOST PEOPLE DO! KEEP GOING UNTIL YOU'VE ACCOMPLISHED IT.

7. MAKE A TRIP OUT TO THE ARNOLD OR THE OLYMPIA

This might seem like an odd goal for those of you who have never been to one of the two big shows in our sport. Those of you who have, can attest to the fact that you will never see so many men and women in phenomenal shape, muscular and lean, anywhere else in the world in one place. I'm not talking about the competitors; I'm referring to the meatheads and fit chicks strolling around the expo. Obviously, anyone who has the money to enter the expo is welcome inside, but you don't want to be the fat guy or the skinny guy when you're in a cavernous convention space packed to the rafters with in-shape people. Plenty of guys plan a "mini-cut" leading up to the Arnold or the Olympia, simply to look good there. If it sounds vain or silly, you can't deny one fact. Targeting one of those two shows is an excellent and highly effective way to set a goal and achieve it, for the many out there who will never compete or otherwise have any valid reason to ratchet up their training intensity and clean eating.

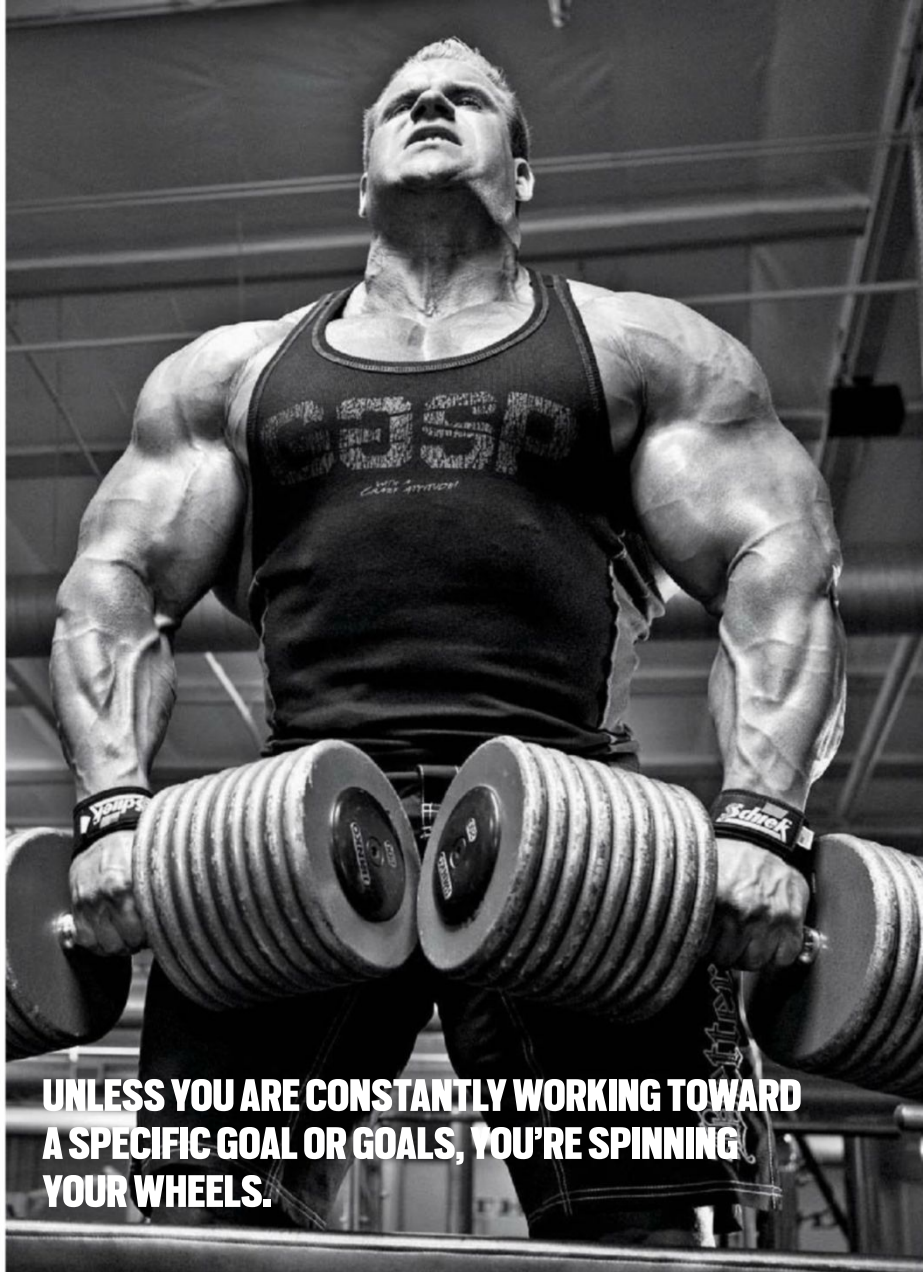


8. ENTER A POWERLIFTING MEET

You certainly can set a personal goal of improving a lift or two, as we said before—but if you seriously want to make sure you get stronger, register to compete in a powerlifting meet! The pressure is on when you know you will be up on that lifting platform trying to outlift every other man in your weight class. Win or lose, you will add new mass to your frame by increasing your strength in the bench press, deadlift and squat. Ronnie Coleman and Flex Lewis are just two of many great bodybuilders who built appreciable foundations of dense, thick muscle mass before transitioning over to bodybuilding.

9. TARGET A BODYBUILDING CONTEST TO ENTER

I had to save this one for last for two reasons. One, I know many of you have absolutely zero interest in ever getting up onstage in little trunks and flexing in front of an audience. And two, it's easily the most challenging goal on this list. As a competitor since 1989, I can tell you that you really should do it at least once as a bodybuilder. You will never be so motivated on a daily basis to train your hardest and eat as clean as possible, because you know on that one day coming up on the calendar, your body is going to be out there under bright lights for all to see—and it will be judged against others. Competitive bodybuilders tend to improve at a steadier rate and ultimately come closer to their full potential than recreational bodybuilders for that very reason. Every workout, every cardio session, every meal and even every hour of sleep serves a purpose when you're in prep. You are driven as you've never been before. Win or lose, you will look the best you ever have—and that's always a win.



UNLESS YOU ARE CONSTANTLY WORKING TOWARD A SPECIFIC GOAL OR GOALS, YOU'RE SPINNING YOUR WHEELS.



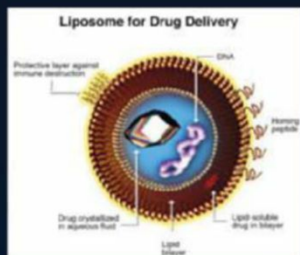
There you have it, nine solid goals to pick and choose from. Choose one at a time, and make sure it's one you are excited about accomplishing. Give it a deadline, and devise your plan to achieve it within that span of time. Adjust your plan as needed along the way to make sure your progress is steady and you are always moving toward the finish line. When things get tough, as they always will in real life in the real world of jobs, family, relationships and school, keep your goal in mind. Remember why it is you want to achieve it, and how good it will feel once you do. Don't get discouraged and give up like most people do! Keep going until you've accomplished it. Then, be sure to savor it for a while—until it's time to set a new goal and continue your path of never-ending improvement!

Ron Harris got his start in the bodybuilding industry during the eight years he worked in Los Angeles as Associate Producer for ESPN's "American Muscle Magazine" show in the 1990s. Since 1992 he has published nearly 5,000 articles in bodybuilding and fitness magazines, making him the most prolific bodybuilding writer ever. Ron has been training since the age of 14 and competing as a bodybuilder since 1989, and maintains the popular website www.ronharrismuscle.com, most notable for its blog "The Daily Pump." He lives with his wife and two children in the Boston area.



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JAN SPANIER PHOTOGRAPHY

THE 10 BEST LIFTS FOR MASS!

Focus on These Golden Basics and Make Insane Gains

Do you have as much mass as you'd like? I sure don't, and I bet you don't either. The nature of bodybuilding

is that we're never fully satisfied with what we see in the mirror. One reason for that is that many of us aspire to resemble the top pros, such as the ones whose images grace these very pages. Yet without their rare, gifted genetics (drugs do play a part as well, but genetics are the true determining factor), it's not possible to reach their outrageous dimensions, such as 22-inch ripped arms, or weighing 270 pounds at 5'10" with three percent body fat. Still, let's forget about anyone else for the moment and focus on you. You have built a certain amount of muscle tissue since the day you started lifting. Have you maxed-out on your full potential for size? Odds are very high that you have not. You may think you've done all that you could, or that you are training as effectively as possible right now. Once again, odds are that you could be doing better.

One glaring commonality in all our workouts is that as the years go by, we get away from many of the basics that served us so well in our early days. We drift away from the tried-and-true

barbell and dumbbell classics, and fill our sessions with isolation exercises, machines and cables. Though not without value, those choices will never give you the same bang for the buck. This month, we've rounded up the 10 best lifts for mass, whether you've been

training for two weeks or 20 years. It's no coincidence that seven of the 10 are compound movements, where you can involve several muscle groups at once and move some serious iron. Unless you have an injury that makes any one or more of these either a very bad idea or outright impossible, you need these 10 in your life right now.

BY RON HARRIS

THE 10 BEST LIFTS FOR MASS!



IT'S THE BIG DADDY OF ALL LOWER BODY EXERCISES. THERE IS SIMPLY NO MORE EFFECTIVE WAY TO LOAD THE MUSCLES OF THE QUADRICEPS, GLUTES AND HAMS THAN TO PUT A BARBELL ON YOUR BACK, SQUAT DOWN LOW AND STAND BACK UP AGAIN.

SQUATS

It's the big daddy of all lower body exercises. Long before you knew what weights were, or even before you could talk, you were squatting. It's a natural movement for human beings from the time we are able to walk. That's why squats are so incredibly effective. There is simply no more effective way to load the muscles of the quadriceps, glutes and hams than to put a barbell on your back, squat down low and stand back up again. To garner the most gains from squats, I do believe in descending to below parallel. We don't all have the flexibility in the hips and ankles to sink down to "rock bottom," but we can all perform a full rep as it relates to our individual structure.

Tips: Avoid piling on more and more plates and sacrificing range of motion. It's OK to do the positive part of the rep, aka the lifting, in an explosive manner, but always take care to lower the weight under control. Absolutely never bounce out of the bottom position. This will wreck your knees over time. Find a stance that feels right for you. Some guys do well with a shoulder-width foot placement, while others need to go wider to achieve proper depth. Try to maintain as upright a posture as possible, as many trainers tend to hunch forward with heavy weights and shift the stress over to the glutes and lower back (as powerlifters do to put up maximum singles). Use a belt unless you have a very powerful core.



BENCH PRESS

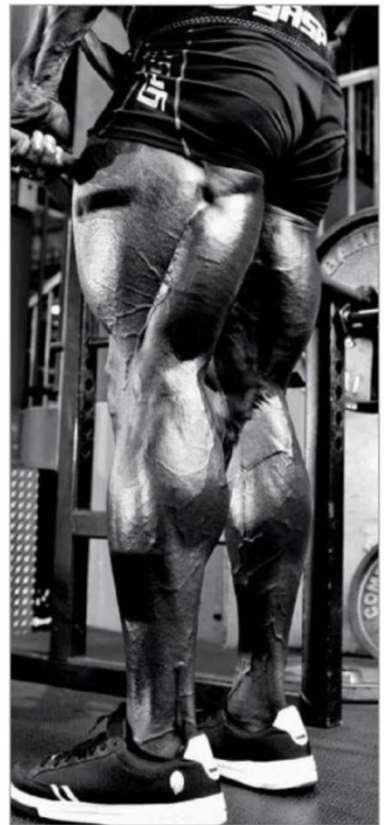
All the pushing muscles of the upper body band together for this monster lift: the pecs, the anterior deltoids and the triceps. It's an exercise used not only by bodybuilders, but also as part of strength and conditioning in dozens of other sports. Nothing else is quite as effective at developing raw pushing power. Though the flat barbell variation is the most popular, you should also do incline barbell presses to give extra attention to the upper region of the pectoralis major.

Tips: "How much ya bench?" isn't nearly as important as *how* you bench. To maximally recruit the pecs and ensure that the shoulders and tri's aren't taking the brunt of the load, set your body mechanics up correctly. Pinch your shoulder blades together, and roll your shoulders down toward your butt. Put a slight arch in your lower back. Use a spotter, but only to hand the weight off to you and help you rack it at the end of the set. Do not become dependent on your spotter lifting part of the weight for you!

DEADLIFTS

If there is any exercise that could come close to being a “full-body movement,” it’s the deadlift. Not only do you get the entire back involved, from the traps all the way down to the spinal erectors, but you’re also using the rear delts, biceps, quads, hams, glutes and calves! That’s a lot of muscle mass to hit all at once. It’s also why those who put the time and effort into deads tend to have a look that reeks of brute power. Think about Ronnie Jackson, Johnnie Jackson, Branch Warren and Dallas McCarver. All pull or have pulled thousands of sets in the range of 500 to 700 pounds, and it shows. It’s legitimately the simplest exercise possible— lift something off the ground, and put it back down. “I pick things up and put them down,” in other words. There is power in simplicity.

Tips: Powerlifters aren’t allowed to use straps to reinforce their grip, but you are. There’s no need for their over/underhand position on the bar. Set both hands overhand (knuckles up), and strap in. The initial drive off the floor is a simultaneous pull with the back, biceps and rear delts, along with a push from the quads and glutes. Never allow your lower back to round. Many bodybuilders have transitioned to partial-range “rack deadlifts,” usually starting the lift mid-shin or under the knees in a power rack, rather than picking it up off the floor. Some swear by them as being more of a true back movement by taking the legs greatly out of the equation, and others dismiss them as a weak substitute for full deads. That’s for you to figure out on your own if you decide to try them.



**“HOW MUCH
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MECHANICS UP
CORRECTLY.**



THE 10 BEST LIFTS FOR MASS!



IF GETTING BIGGER IS WHAT YOU WANT MOST OUT OF YOUR TIME DEVOTED TO THE GYM, ALL 10 LIFTS BELONG IN YOUR ROUTINE. THESE CLASSICS DELIVER THE MOST BANG FOR THE BUCK, AND WILL HELP YOU GROW TO THE SIZE YOU WANT.

CHIN-UPS

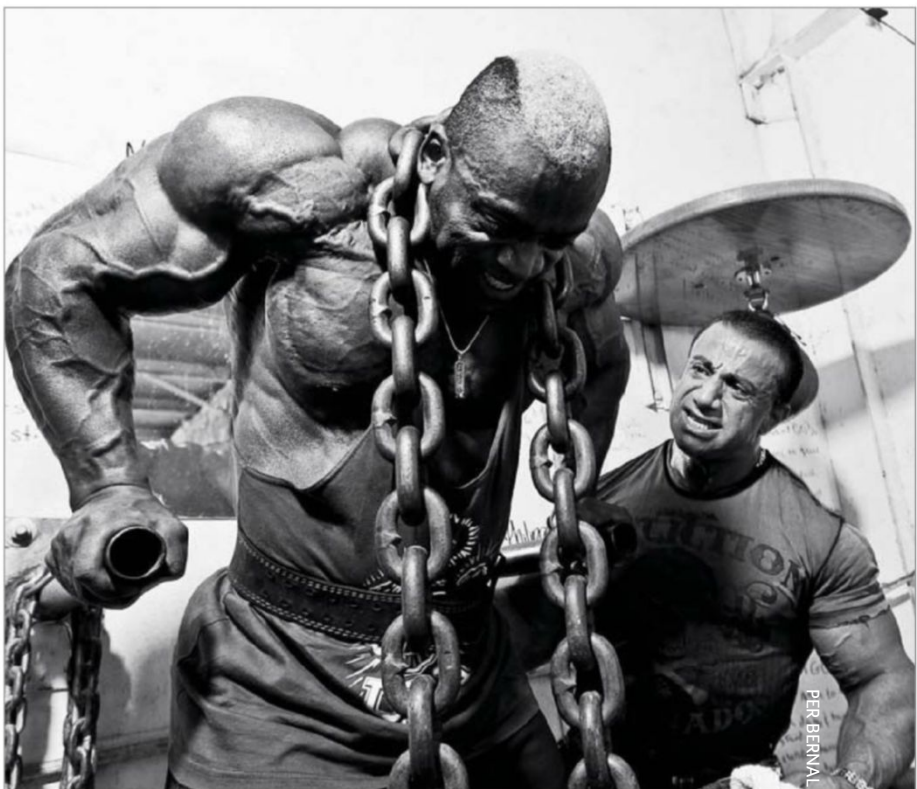
The chin-up is not only a very natural movement among humans, but also all primates. It's how you pull yourself up on to a branch or the top of a surface such as the top of a fence or wall, or when climbing steep hills or mountainsides. As an exercise, nothing trumps it for working the upper lats, rhomboids, teres major and minor, and even the biceps. It requires minimal equipment, just a bar bolted to the wall or between two other supports. Once someone has mastered the chin-up with their own bodyweight, the next step is adding weight via a belt. Once you get to the point where you are doing good reps with a 45 hanging off you, you can be sure your upper back is going to be pretty wide and rugged.

Tips: Due to the popularity of CrossFit, we now see people doing chins and variations of them being done in a very ballistic manner, with vigorous body swinging. These do not recruit the lats in the same way as chin-ups in the style that bodybuilders perform them: with controlled speed of motion, and with extra emphasis on contracting the muscles of the upper back. Wide-grip chins have been proven to target the lats most effectively, but you should also do them with an underhand grip, as well as neutral. Use wrist wraps if they help you get more reps, as is the case with most of us. The grip can be and often is a limiting factor on chin-ups for many. Don't let that weak link shortchange your gains!

DIPS

The dip is right up there with the bench press in terms of overall impact of the pushing muscles of the upper body. Bodybuilders from the '40s, all the way through to Arnold, relied on dips for complete pectoral development. When leaning the torso forward, the chest is maximally recruited, as the angle is very similar to a decline barbell press. If you maintain a more upright torso position, the triceps are forced to take more of the workload. Weighted dips are one of the most effective mass builders you will ever do for the chest and triceps.

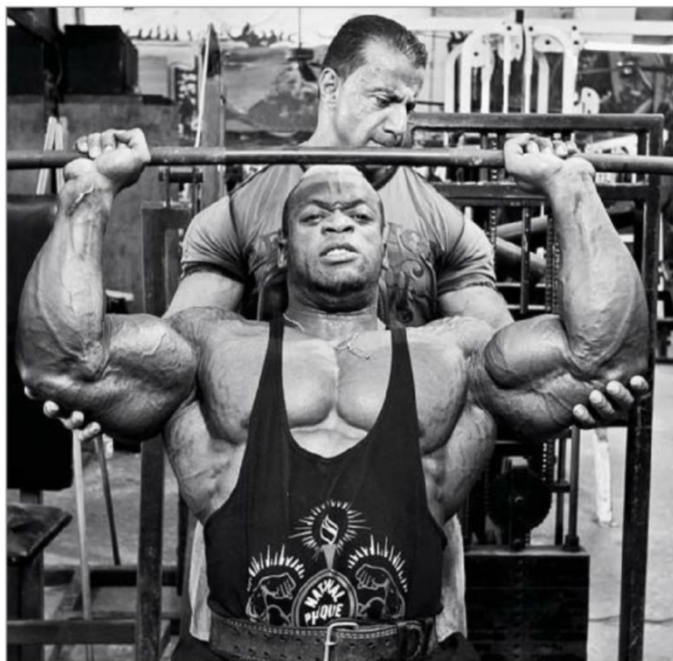
Tips: Some find dip machines to be better options, particularly when it comes to attempting to isolate the triceps. But if you can do them, nothing beats parallel bar dips. Experiment with keeping your elbows closer to the body or flaring them out, to find the optimal form for you. If you have the shoulder flexibility, lower all the way down until your shoulders are just above the level of the bars to really nail the pecs. If you want to hit more triceps, lower only until the bones of your upper arm are parallel to the floor. To lock out the elbows or not is also a matter of how much triceps involvement you want. A full lockout will fully contract the tri's. Another option with dips is "bench dips" between two benches, piling weight on your lap. And finally, not all gyms have dip/chin belts to add weight. If yours doesn't, you can find them online for 20 or 30 bucks.



MILITARY PRESS

The military press was considered so basic and vital to overall development that in the early decades of powerlifting, it was a competition lift along with the bench press, squat and deadlift. The only reason it was dropped was because there were arguments over how much backward lean was permissible in the standing press. Regardless, the standing and seated versions of the barbell press to the front, aka the military press, are fantastic for building overall shoulder size and strength. Though dumbbells also have their merits and do allow the shoulders to rotate back a bit more, they become cumbersome to get up into position once you reach a certain level of strength. Meanwhile, you can load the barbell up with 225, 315 or even 405 for some rare freaks. If you can blast up 315 or more in decent form for reps, it's a lock that you've also built some thick, wide shoulders.

Tips: Standing military presses are the toughest way to do these, but they are more effective too. They also make the excessive back arch and backward lean that often occurs with the seated press impossible. You may only be able to put up 135 standing as opposed to 225 seated. That's how much harder they are! But again, it's worth the extra effort. Use a belt for these, and a spotter is as necessary on seated military presses as they are for the barbell bench press. Lower the bar to the bottom of your nose, or your chin at the lowest. There is no need to lower the bar all way down to touch your clavicles, as this overstretches the shoulder joint.



BARBELL ROWS

If you want a thick back, you must do barbell rows. Every Mr. Olympia champ known for a great back, including Arnold, Franco, Lee Haney, Dorian and Ronnie, paid his dues with this one. Some of the most iconic and inspirational training shots ever seen were of these men rowing. I still recall a picture of Arnold standing on top of a padded bench, torso fully bent over, with 315 pounds in his hands. Dorian made the reverse grip option all the rage in his six-year reign as Mr. O. Nothing beats barbell rows for raw horizontal pulling power, and they are unparalleled for developing back thickness.

Tips: These are often called "bent" or "bent-over rows," though the angle of torso bend varies. Arnold and Haney did theirs with a full 45-degree bend, with torsos parallel to the ground. Dorian stood a bit more upright at around 70 degrees, feeling he was better able to engage his lats that way. Going any higher than that starts turning a



10 BEST BACK-TO-BASICS MASS ROUTINE*

DAY 1

BENCH PRESS	5 X 12, 10, 8, 8, 8
CHIN-UPS	5 X 10
MILITARY PRESS	5 X 12, 10, 8, 8, 8
DEADLIFTS	5 X 12, 10, 8, 6, 6
BARBELL CURLS	4 X 8-12

DAY 2

OFF

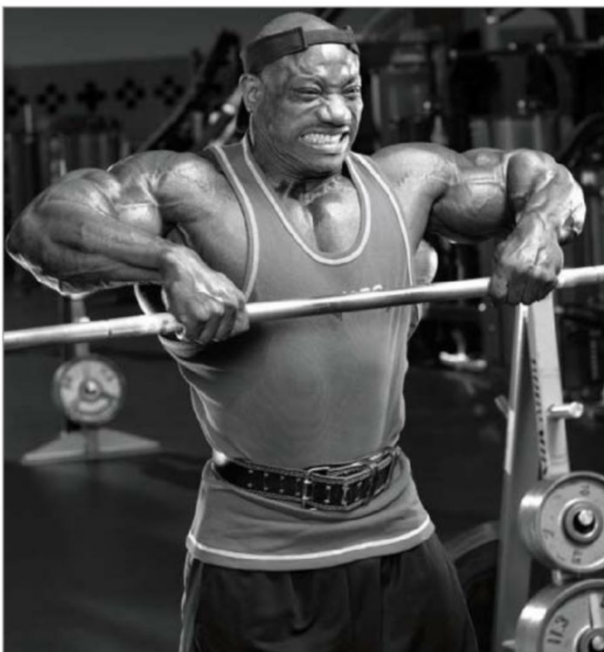
DAY 3

DIPS	5 X 10
BARBELL ROWS	5 X 12, 10, 8, 8, 8
SKULL-CRUSHERS	4 X 8-12
SQUATS	6 X 15, 12, 10, 10, 10, 6
STANDING CALF RAISES	5 X 20, 15, 15, 12, 10

DAY 4

OFF, REPEAT

*WARM-UPS NOT SHOWN. ALWAYS WARM UP AS MUCH AS YOU NEED TO!



row into something close to a shrug, as the range of motion is truncated. A forceful pull of the bar into the abdomen should coincide with a contraction of the lats, then followed by a controlled negative in which you can feel the lats stretch. Whether you pause each rep for more emphasis on the lats, or keep the bar moving in more of a piston style, is a matter of personal preference. As with deadlifts and chins, use straps if you need them.

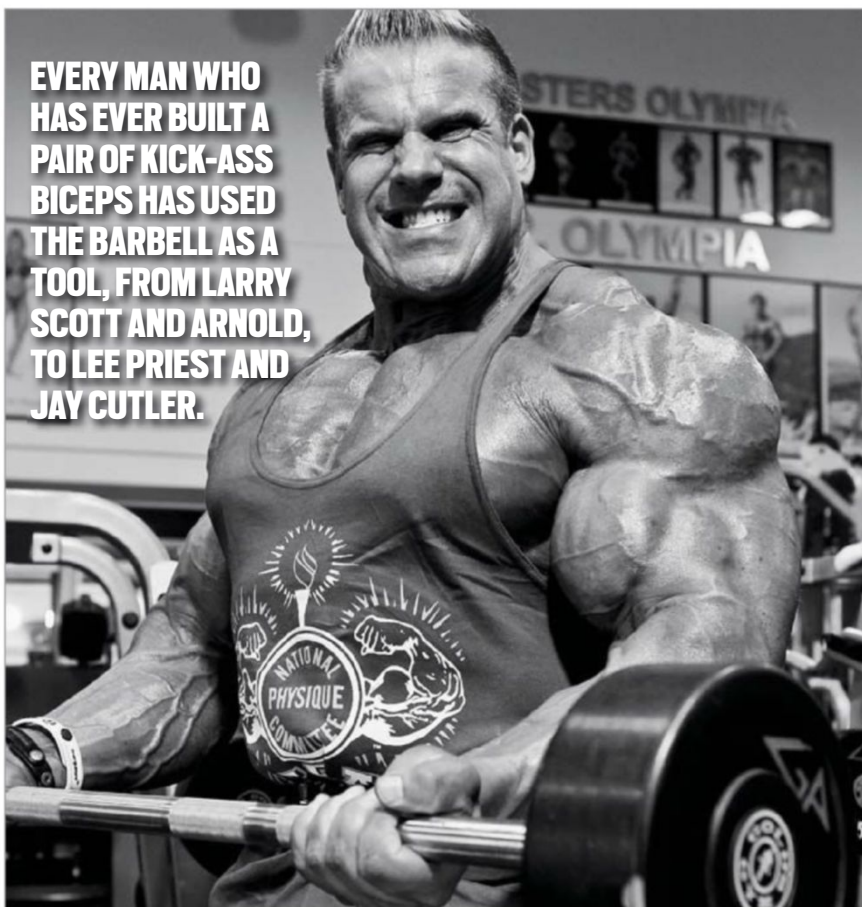
THE 10 BEST LIFTS FOR MASS!

BARBELL CURLS

If you're pulling substantial weights on deadlifts, barbell rows and adding weight to chins, your biceps are getting a hell of a lot of residual work. They still need some direct training, and the barbell curl is the most effective option. Every man who has ever built a pair of kick-ass biceps has used the barbell as a tool, from Larry Scott and Arnold, to Lee Priest and Jay Cutler. The barbell allows for a greater load than dumbbells, so you can curl some decent loads of iron.

Tips: Barbell curls are among the most commonly abused exercises in terms of form. The overriding tendency is for trainers to use more weight than they can handle using only biceps power, and proceed to heave and swing and thrust their hips to throw the barbell up from the bottom position. While "cheat curls" do have their place, that place is after at least a few strict sets or reps have been done. Do your best to keep your elbows at your sides as you curl, and don't jerk your whole body to start the reps. Use a controlled rep speed. Think about flexing your biceps as you curl, and feeling them stretch back out as you lower the bar. After three or four sets, your biceps should be pumped and burning. If they aren't, you need to use a little less weight and make the biceps do the work. The straight bar is the most popular option, though many find that the contoured shape of the EZ-curl bar causes them less wrist strain.

EVERY MAN WHO HAS EVER BUILT A PAIR OF KICK-ASS BICEPS HAS USED THE BARBELL AS A TOOL, FROM LARRY SCOTT AND ARNOLD, TO LEE PRIEST AND JAY CUTLER.



SKULL-CRUSHERS

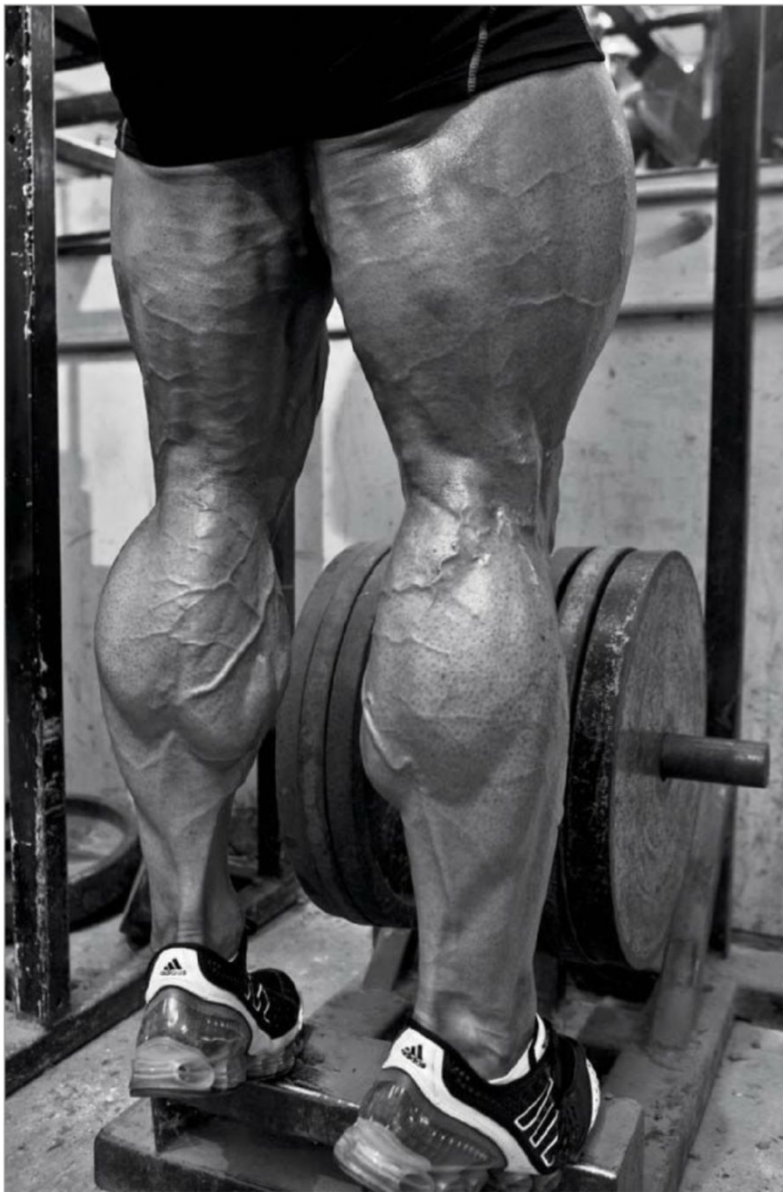
If you've gotten to the point where you can bench press 1.5 times your bodyweight for reps as well as do dips with half your bodyweight strapped on, your triceps will no doubt be thick and beefy. They still need some direct work, which is where lying triceps extensions, aka skull-crushers, come into play. They fulfill the primary function of the triceps, which is to extend the arms.

Tips: Most people do skull-crushers on a flat bench, but you may find you get a better range of motion and a better stretch with either an incline or a decline bench. Most trainers fare better with an EZ-curl bar here rather than a straight bar, because you will be using heavier weights than you can curl; and not all of us have big, clunky wrists. You can lower the bar to your nose, your forehead or behind your head. Use a spotter, if possible, at all times. Once you are handling substantial weight, having a spotter hand off the bar to you and take it away at the end of your set will save you a lot of trouble, as well as save your energy for the actual set instead of wrestling the bar into place.

TOP: PER BERNAL. BOTTOM: GREGORY JAMES

EATING FOR MAXIMUM MASS

It should go without saying that the greatest workouts will fail to yield substantial results without proper nutritional support. Dorian Yates and his Heavy Duty™ predecessor, Mike Mentzer, were both adamant in reminding us that training stimulates muscle growth, but actual growth only takes place with adequate recovery between workouts. That means plenty of rest, and plenty of good, clean food. Without enough raw materials, our bodies simply cannot synthesize new muscle tissue. Make sure you are packing in the quality calories every day and especially taking in 1.5 grams of protein per pound of bodyweight. Don't go too low on carbohydrates or healthy fats, either. Your body needs all that to fuel intense workouts, then recover and rebuild the damaged muscle fibers. Along with focusing on the 10 best exercises, you should be eating copious amounts of chicken, eggs, turkey, lean red meat, fish, potatoes, rice, sweet potatoes and oats, along with fresh fruits and vegetables. Put all that together with eight solid hours of sleep every night, and boom! Grow time.



STANDING CALF RAISES

Last but not least, we need to hit the calves with one winning basic movement, and the standing calf raise is the best selection. You don't even need a machine for calf raises. Anything you can stand on and hang your heel off, such as a step, will suffice. The late Arthur Jones, of Nautilus fame, refused to build a machine for calves, because he felt nothing he could engineer would be any better than a block of wood to stand on and a heavy dumbbell in one hand.

Tips: The calves are a notoriously stubborn muscle group to build, for two reasons. One, they are largely genetic. If you have high muscle insertions, there just aren't a lot of muscle cells there to work with. We have no control over how high or low our calves insert. We do have total control over how we train them, and many of us do it wrong. We do short, bouncy reps with too much weight instead of using a full range of motion and a controlled rep speed. Rise up all the way on your tiptoes and flex your calves, then lower until your heels are lower than the arches of your feet. Very low reps don't seem to do much for calves. Work in ranges of 10-12, 12-15 and 15-20.

Those are the 10 best exercises for building mass. If getting bigger is what you want most out of your time devoted to the gym, all 10 belong in your routine. You can add in other exercises, of course, but put your emphasis on these 10 by doing them early in your workouts when you're fresh. If you really want to go on a mission for mass, take a few weeks and use only these 10 movements, as shown in the sidebar. It will be a brutal shock to your system that will force new gains your way. If not, just be sure these exercises form the core of your routine. Consider them the main course, while everything else is merely an appetizer and dessert. These 10 classics deliver the most bang for the buck, and will help you grow to the size you want.

A full-page photograph of Paige Matthews, a fitness model, posing on a black fur rug. She is wearing a black sports bra and has long, wavy blonde hair. She is looking directly at the camera with a slight smile. The background is dark and out of focus.

Paige

PHOTOGRAPHY BY JASON ELLIS

Hathaway

Paige Hathaway is just another small-town girl born and raised in Minnesota, except she is the proud owner of a tight, bodacious booty that forms a natural focal point—like the Twin Cities of Minneapolis-Saint Paul in her home state. In a few short years, Paige has blossomed into an iconic fitness cover model, entrepreneur and motivational coach with almost 4 million Instagram followers. In this month's Major Distraction, we revisit the fine lines of this Bikini competitor.











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By Peter McGough
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THE NEXT GENERATION

At Age 24, Hunter Labrada Is Following in the Footsteps and Reps of His Father, Lee – an Icon of 20th Century Bodybuilding – and We May Well Have Another Labrada in the Pro Ranks Soon

SON OF A GUN – 20" VARIETY

Hunter Labrada was born on May 17, 1992, at the family home in Houston, Texas. His parents are legendary bodybuilder Lee and his wife, Robin. Later on, Hunter was joined by brothers Blade and Pierce, who are now 19 and 16 respectively. Realizing that his father was an all-time great was a gradual process for Hunter, as he remembers, "As I grew up I noticed medals, awards and photos on display in the house and learned that Lee [he always calls his dad Lee] used to compete in this bodybuilding thing. I never had any idea how great he was because he never told me. Then as I got older, I realized ... Wow! He competed at the absolutely top level and nearly won the Olympia twice, in 1989 and 1990. I came to understand that he wasn't just a bodybuilder; he was one of the best bodybuilders ever. It really came home to me when I went to the 2004 Olympia when I was 12 years old. I walked around with him, and so many people recognized him and asked for photographs and said so many wonderful things about him that it underscored that Lee was a true and highly revered bodybuilding great.

"Now that I am a competing bodybuilder, I realize more than ever how incredibly difficult it was to achieve what he did at the highest level. Even more incredible is that he was taking on and beating guys who were 50 pounds

heavier than him. [At 5'6", Lee's contest weight was around the 185- to 190-pound mark.] So whenever I walk into my parents' house and see those seven Olympia medals and all the other awards, I truly appreciate how much work and dedication he harnessed to his God-given talent."

He adds, "Lee never pushed bodybuilding on to me, and from about the age of 5 until I was 12, I played a lot of hockey— ice and roller— and then in seventh grade, I played my first season of football and that's when I started lifting weights to improve my game."

Lee recalls the 12-year-old Hunter: "He was about 5 feet tall and weighed about 90 pounds. I was thinking, this poor kid, I hit the genetic jackpot while he got the bottom of the barrel. And then when he got to 16 he just blossomed, just started growing. He got taller, wider and started putting on muscle; he got stronger all round but particularly in the legs. This happened really rapidly, and the weights he was using at the time were for football, not bodybuilding. This growth and strength spurt really piqued my curiosity as to how much he could develop. From thinking he'd drawn the short straw in the genetics sweepstakes, I changed my mind and began thinking of him as a real wild card who has now turned into an incredible up-and-coming young bodybuilder with pro potential."



AS ONE DREAM FADES, ANOTHER BLOSSOMS

In 2010, Hunter graduated high school in Houston, and won a football scholarship to Bentley University in Massachusetts. He was 18, and the 12-year-old runt of the litter was now 5'9" and weighed 205 pounds.

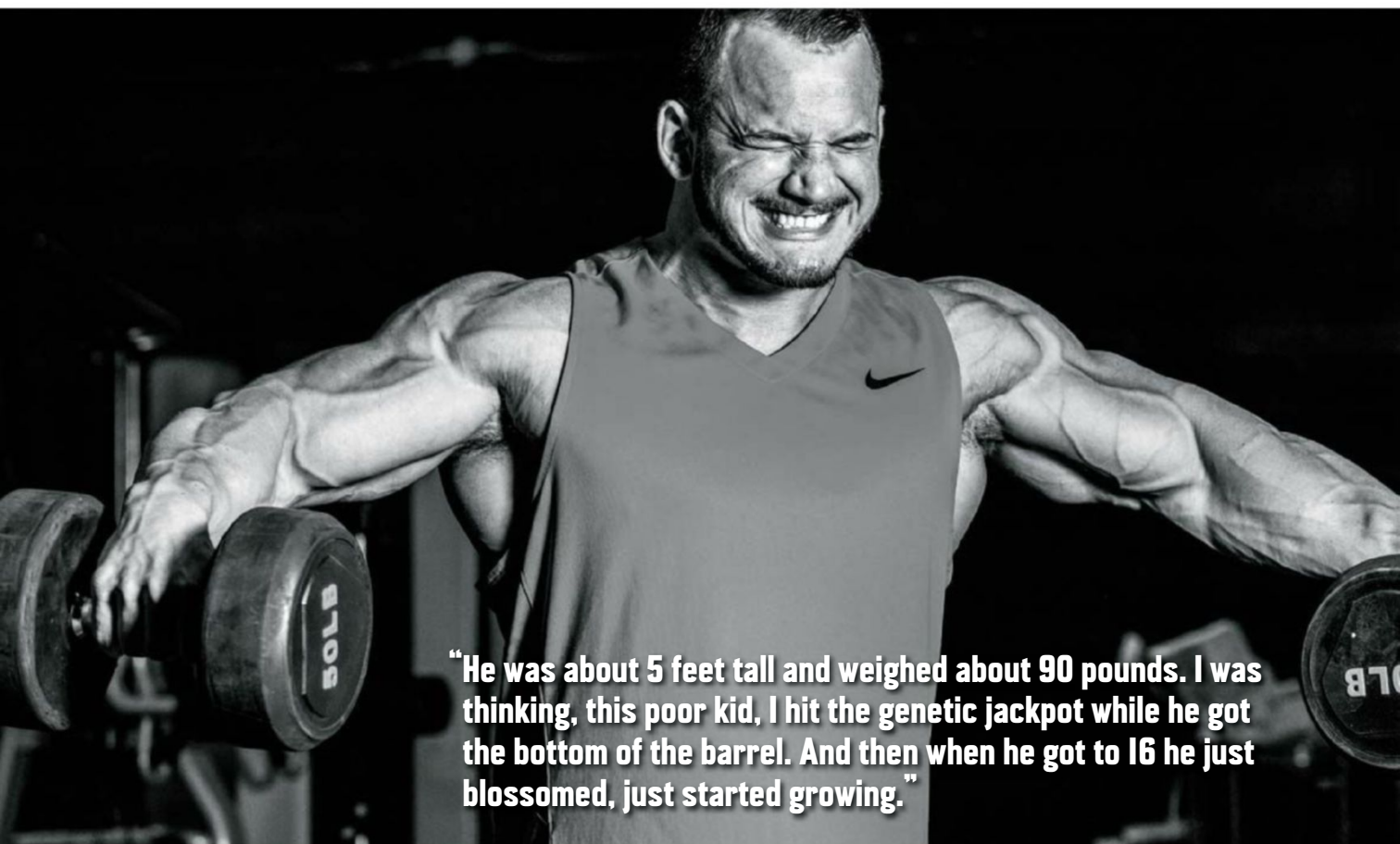
Hunter confesses, "I was head-over-heels in love with training for football and playing football."

His father followed his lifting progress but didn't direct it, as Lee was blessed with a great strength coach at high school. But in his last year at high school, he sustained a hamstring pull and hip fracture that meant he couldn't play football in his first year at Bentley. Sidelined from the football field, Hunter began to concentrate more on weight work in the gym, and reconstructed his routine away from focusing on the explosive lifts that aids gridiron performance and changed to more of a bodybuilding routine.

From being head-over-heels in love with football, his passions began to change. He explains, "It was a gradual change, but when I saw how much I was improving physique-wise by following a bodybuilding routine, it made me ponder as to how much progress I could make. It finally sunk in that I was more in love with being in the gym every day, and my football dreams began to fade." And so he made the decision not to pursue his football endeavors at Bentley, and instead focus on being a bodybuilder.

FAMILY FEUD FOR THOUGHT

Looking back, Hunter states, "It was a massive decision because my whole family, and Lee especially, was just as crazy about football and watching me play. I knew it wouldn't be a popular decision among the family, but I knew I was going to have to stick by it. Lee told he didn't want me to stop playing the sport I had loved, and then regret



“He was about 5 feet tall and weighed about 90 pounds. I was thinking, this poor kid, I hit the genetic jackpot while he got the bottom of the barrel. And then when he got to 16 he just blossomed, just started growing.”

years later that I didn’t take it further. It tends to surprise a lot of people whenever I say Lee wasn’t doing backflips when I decided I wanted to bodybuild.”

But as the months went by, Lee could see his first-born was really committed to bodybuilding, verified by how he was fast improving his upper body to be on a par with his legs. Of Hunter’s life-changing decision, Lee asserts, “What finally sold me on his decision was when he said to me, ‘Look, my heart is not in football anymore.’ I could see in his eyes that he was totally serious. It made me think back to that time in my life when I decided to be a bodybuilder, how important it was to me then, and how now it was so important for Hunter. So I gave him my blessing and looking in the rearview mirror today, it was the right decision. More than that, let’s say *he* made the right decision.”

For Lee, that father-son episode made him think back to when he was 18. “That was the age when I told my father



SON OF A FAMOUS FATHER

Hunter is asked if following in the footsteps of a bodybuilding icon with the same name is a burden. He answered, “Honestly, it’s not a burden. The way I look at it is that having such a famous father who had such an incredible physique gives me a goal to strive for. It motivates me rather than inhibits me. I think it is so cool that I am the second-generation Labrada bodybuilder. I’m continuing something my dad started. God willing, I may be able to compete one day at the level he did and if I don’t make that level, I won’t see it as failure. I’ll still know I gave it everything I had to try and reach that goal.”



“I can count on one hand the number of bodybuilders I have seen in my lifetime who have as much year-round discipline as my son when it comes to training and diet. His commitment is incredible.”

I wanted to be a bodybuilder. I was like 150 pounds and I told my father I would be Mr. America by the age of 24, and he laughed. (Lee did win the IFB version of Mr. America, the NPC Nationals, in 1985 at age 25, and then a couple of months later, won the middleweight division at the World Championships to turn pro.) From his initial skepticism, my father became my number one fan, so history sort of repeated itself.”

Although Hunter was fired-up 100 percent to be a competing bodybuilder, he didn’t want to rush into it and has shown extraordinary patience and maturity, belying his tender years, in plotting his path. “From the get-go, my ambition was not to just compete but to eventually be a professional bodybuilder. I knew that was a journey that couldn’t be completed in a huge rush. I didn’t want to destroy my body trying to get big for the sake of it, like you see a lot of kids do. Lee ingrained into me that bodybuilding is a marathon, not a sprint.”

He was 18 when he made that pivotal decision in 2010, and with remarkable patience he didn’t compete until 2016 when he was 24.

Ask Lee about that patient approach and he will tell you, “I can count on one hand the number of bodybuilders I have seen in my lifetime who have as much year-round discipline as my son when it comes to training and diet. His commitment is incredible.”

HUNTER GOES HUNTING

For his debut, Hunter zoned in on the 2016 NPC Branch Warren Classic, staged in Houston last July 16. He expounds on his choice, “After six years of preparing, I didn’t want to do a low-level backwoods type of show. Branch’s show is a big national qualifier, so I wanted compete at a good level and be tested—I didn’t want any sort of empty victory.” He laughs, “Of course, with most of my family being in Houston, I would have been borderline disowned if I’d have picked a show to which they all couldn’t come.”

POSING: FATHER KNOWS BEST

What is the dynamic of their relationship in all things bodybuilding? Lee answers, “I don’t directly oversee his training or nutrition. I am more of a resource for him to tap into, to share ideas along the lines of what do you think of this or what you think of that? By the time we got to the point where he was ready to enter a contest, he was pretty much well-versed in all aspects of training and nutritional information and is very much his own man.”

Hunter suddenly jumped in, “On the other hand, Lee was definitely 100 percent the person responsible for overseeing my posing. We did posing practice two to three times a week from 10 weeks out, and then the last couple of weeks it was daily. That definitely was a crucial component for me and I just couldn’t get better coaching on that front from anyone else on this planet. How awesome is it to have Lee Labrada instructing you on posing?”

The question of posing prompts Lee to reveal, “I go to a lot of NPC shows around the country and when I go backstage, I always get a warm reception from the open class bodybuilders. But the guys in the Classic Bodybuilding division go crazy when they see me. They run up to me and tell me how they learned to pose by watching my routines. I just hope posing, which has been somewhat of a lost art recently, will go through a renaissance with the introduction of the classic bodybuilding class.”



PER BERNAL PHOTO



Hunter's contest prep for his debut was 16 weeks. From an off-season high of 251, he sculpted his physique down to 223 contest-ready pounds and won the heavyweight division and the overall.

How does he remember the day? "In the end, it all happened quickly once I started warming up backstage. Looking around, I could see that there were at least two really good competitors who had done their homework. Onstage, you don't know what you look like in comparison to others but when I was always in the center for my callouts, my confidence grew. My mindset was, OK, I'm here to fight for first place. When I got off-stage, Lee— whose opinion I obviously trust, he would never BS me— told me, you got this."

And what was it like for Lee, watching his son stride out for the first time onstage, replicating a walk he first took over 30 years ago? "It was just coolest experience because in a way I was reliving my past— it was like déjà vu, seeing him doing the same thing I did all those years ago. I was really impressed with the whole package, his physique, his presentation and his onstage demeanor. I could not have been more proud of him."

Four weeks after his Houston victory, Hunter competed in the San Antonio Extravaganza, where he found himself in the superheavyweight class (above 225 pounds), which he won but didn't take the overall. His postmortem on that: "I'm not one to make excuses for myself, but after dieting 16 weeks for the Branch Warren contest, the extra four weeks for this one just seemed like more than my body wanted to put up with. Despite following the same diet and peaking protocol, I wasn't nearly as sharp or conditioned as I was at the Branch. The result is a learning experience, and is just another one of the hundreds of things I will find out about my body. I can say this, it has lit a fire under my ass heading into this off-season."



FORWARD INTO 2017

With 2017 now here, Hunter has not decided on what his next contest foray will be. Brutally honest, he says, "Even for the Branch contest, I think I was holding five or seven pounds of surplus water and fat. Instead of going up to 250 in the off-season, I aim to stay around 242 and then compete at a

full and peeled 225 pounds, having rid myself of the surplus I carried last year. I am still excited about taking the next step of the journey to a pro card."

Hearing this, Lee comments, "I think that pragmatic approach tells you how honest and intelligent he is and with his level of motivation, I have no doubt he's going to reach his goals. I just thank God for the privilege of being able to pass the torch on to Hunter"

The last word is with Hunter and as you might expect, it is family oriented: "I couldn't ask for someone to be more supportive or have more knowledge than Lee. He talks about my dedication but I got that from somewhere you know, that somewhere being my genetic inheritance. Lee kept his nose to the grindstone all those years as a pro bodybuilder and then went straight into launching Labrada Nutrition, and turned it into the force it is today. That force provides for the family and all our employees, who we treat as family as well. But over and above everything, the one thing that always impresses me and sticks out in my mind is what people say about him that has nothing to do with him as a bodybuilder. Namely, that he has always been a class act who is very kind to everybody he comes



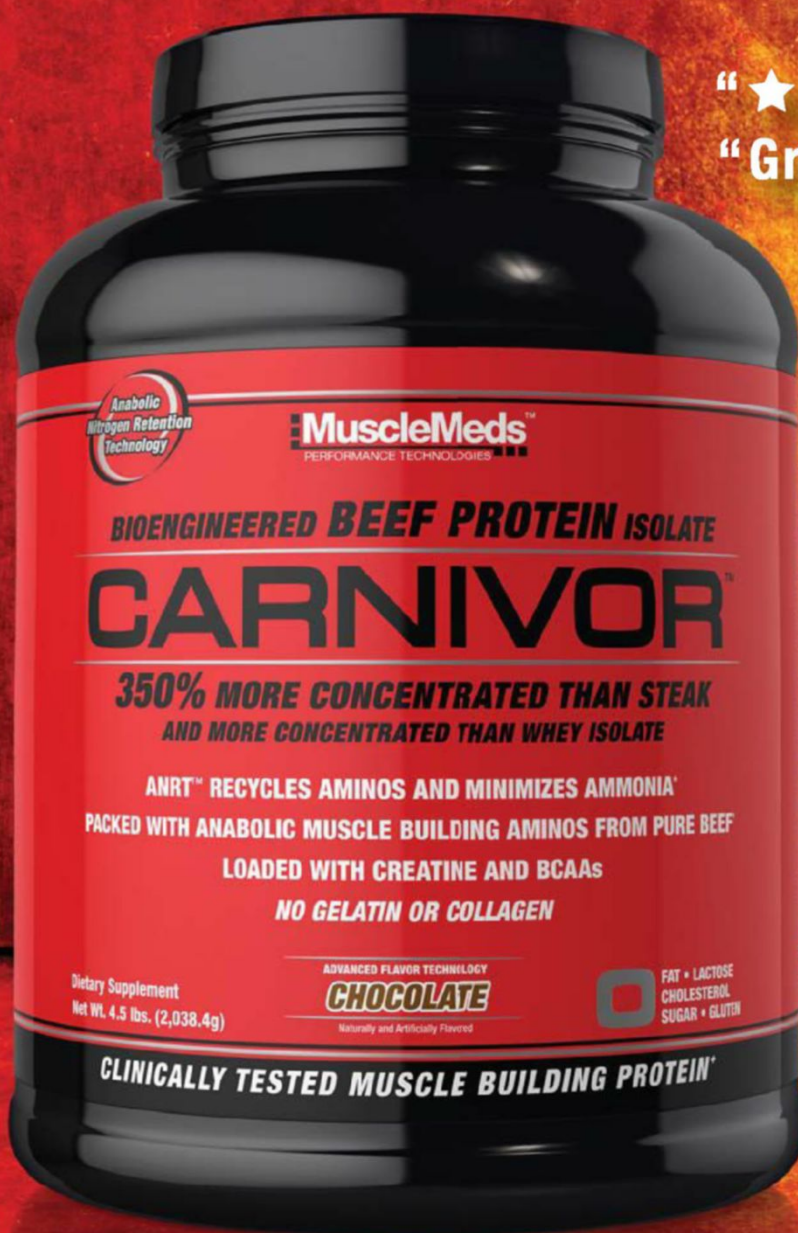
"He has always been a class act who is very kind to everybody he comes into contact with, and he always has time for fans and for everybody. I think there is no higher praise than to laud someone for being an all-round kind human being who really cares about people. I follow his example and aspire for the same to be said about me."

into contact with, and he always has time for fans and for everybody. I think there is no higher praise than to laud someone for being an all-round kind human being who really cares about people. I follow his example and aspire for the same to be said about me."

Hunter, I think that sentiment is already being felt by those who have interacted with you, and we look forward to at some point in the future for the Olympia emcee to bark out, "And our next competitor from Houston, Texas ... Hunter Labrada!" And so the family business continues. ■

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*Sharp, et al., 2015 ISSN International Conference (Poster). Muscle mass data based on male subjects.





RISE OF THE YOUNG GUNS!

22-YEAR-OLD CODY MONTGOMERY BLASTS BI'S AND TRI'S

AN IMPRESSIVE RÉSUMÉ AT 21

It's safe to say that none of today's pros can claim to have accomplished as much as Cody Montgomery had at the age of 21. Firstly, until he came along, no one had ever won the NPC Teenage Nationals more than once. Cody racked up three of those titles, along with an overall at the Collegiate Nationals, before his 20th birthday. While still 20, he made the 2015 NPC USA Championships his first foray into open competition. Most pundits and experts had assumed it would take him a couple of years and a few attempts to make the transition into the open men and earn pro status. In a stunning surprise, he won the heavyweight and overall titles—putting him in the esteemed company of other USA champs like Phil Heath, Flex Wheeler and Chris Cormier. The “smart” thing to do would have been to take all of 2016 off to grow and improve, then test the waters cautiously with a smaller pro show in 2017, where he would be virtually guaranteed a high placing if not an outright win. Instead, Cody jumped right into the 2016 Arnold Classic, where he would stand onstage with heavy hitters and veterans like Kai Greene, Cedric McMillan, Branch Warren, Justin Compton, Evan Centopani and Maxx Charles. Though he brought sharp conditioning, Cody was out-massed by most of the other men. Still, by placing 10th, he still managed to beat two men who have been pros since Montgomery was a small child, Johnnie Jackson and Toney Freeman. It's interesting to note that both those men were also at least twice Cody's age. All in all, it was a respectable pro debut and showed that this kid isn't afraid to stand next to anyone.

BY RON HARRIS, PHOTOGRAPHY BY MICHAEL NEVEUX



"One thing I've really learned is to respect the recovery process and avoid overtraining. It's even more critical with a body part like arms, since they are involved in everything we do for chest, back and shoulders."

THE GUN SHOW – PROLOGUE

There's one thing several of the pros in that Arnold Classic like Kai, Cedric, Justin, Maxx and Evan are all known for—enormous arms. You would not want to trade front double biceps poses with any of those men unless you yourself owned a pair of bi's and tri's that were also outstanding. Luckily, Cody had nothing to worry about. Arms are a body part that has responded well for him from the time he got serious about training at the tender age of 14. Back then, he lived by the motto, "curls for the girls," and did at least some arm work every day. Before too long, he got on a standard bodybuilding training split, so that all his muscle groups could get equal attention. "But if a buddy of mine was training arms and asked me if I wanted to work out with him, I didn't say no," Cody admits. By the time he was being coached by Hany Rambod during his Teen Nationals reign, he was hitting arms with a training day of their own, as well as doing a little bit of biceps after back, and some triceps work after chest. "One thing I've really learned is to respect the recovery process and avoid overtraining," he tells us. "It's even more critical with a body part like arms, since they are involved in everything we do for chest, back and shoulders." Now, let's take a look at how Cody trains those young guns.



STRAIGHT-BAR PUSHDOWNS

As most experienced trainers do, Cody starts his triceps workout off at the cable station for pulldowns. The steady resistance of the cables allows the triceps, and more importantly the elbows, to gradually acclimate to the progressively heavier loads. Cody prefers to use a straight bar, and keeps the reps on the higher end, 12-15, to get the tri's pumped and warm. Though he will push down with an explosive motion, he stops at the bottom of each rep to emphasize the contraction, and focuses on a slower, controlled stretch all the way back up to the start position.

MACHINE DIPS (NOT SHOWN)

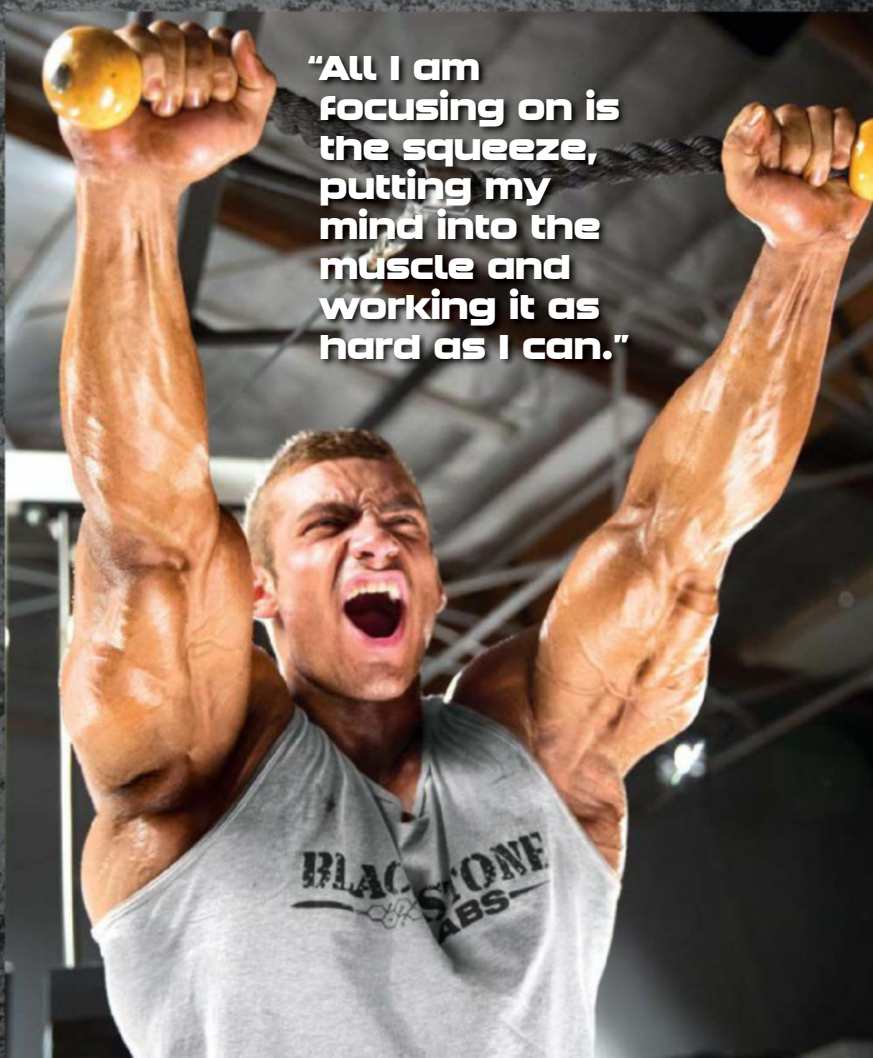
Montgomery's go-to compound movement for triceps for years was the close-grip bench press. More recently, he's switched to seated machine dips. "I prefer bodyweight dips on chest day, because you get a better stretch and pec activation," he says. "But the machine version is a good isolator for the triceps." He keeps the reps around eight to 12 for four sets, with a squeeze at the bottom and a full, two-second negative on every rep. "A lot of times, when I can't get any more full reps, I will do a couple of partials in the stretch position," he adds.

OVERHEAD DUMBBELL EXTENSIONS

Many bodybuilders opt for skull-crushers as their heavy extension movement for the triceps, but Cody favors seated overhead extensions with a dumbbell. The two-arm version is his choice. "The single-arm version kills my elbows and I feel that over time, would wreck my shoulders," he notes. His most important tip is to try and keep your elbows in close to your head. If they drift too far away, you are no longer doing a true extension movement for the triceps—more like a close-grip overhead shoulder press.

OVERHEAD ROPE EXTENSIONS

Montgomery likes to finish off his triceps with another cable movement. "The goal at this point is just to burn them out," he says. Sometimes it will be with the overhead rope extension, as shown. More often, he selects the single-arm cable pushdown with a reverse, or underhand grip, which effectively targets the long head of the triceps. One way he boosts the intensity of the sets there is to do 10-12 reps to failure, then flip his hand over and continue on with an overhand grip for a few more reps. "You have to focus on the squeeze here, not the weight," he cautions. It's a finesse movement that wouldn't even be possible with heavy weight for all but the very strongest men.





BARBELL CURLS

With triceps done, Cody starts the biceps portion of his arm workout with barbell curls. He is shown here using a straight barbell, but in real life he typically uses an EZ-bar. Many trainers find that the contours of the cambered bar cause far less wrist strain over time. He takes his time and does four or five sets of 10 reps, with an instinctive rep tempo that often changes as he seeks out the perfect mind-muscle connection with his biceps. Cody might do a few reps with a constant motion, then another one of two where he comes to a full stop at the top of the rep to flex his biceps hard, and then finish off with a couple more reps at normal speed. From there, he usually goes on to a Hammer Strength curl machine for three or four sets of 12 reps.



CODY'S TYPICAL ARM WORKOUT

Triceps

Straight-Bar Cable Pushdowns	4 x 12-15
Machine Dip	4 x 8-12
Overhead Dumbbell Extensions	3 x 10-12
One-Arm Underhand Cable Pushdowns	3-4 x 10-12

Biceps

EZ-Bar Curls	4-5 x 10
Hammer Strength Machine Curls	3-4 x 12
One-Arm Dumbbell Preacher Curls	3-4 x 12
Dumbbell Hammer Curl*	3-4 x 11

*Cody likes to alternate arms for five reps, and then perform six more reps using both arms at once.

CODY'S SUPERSET ARM WORKOUT

Rope Pushdowns	3 x 12-15
<i>superset with</i>	
Barbell Curls	3 x 10-12
Machine Curls	3 x 12
<i>superset with</i>	
Close-Grip Bench Press	3 x 8-10
Seated Overhead Dumbbell Extension	3 x 8-10
<i>superset with</i>	
One-Arm Underhand Cable Pushdowns	3 x 12
Hammer Dumbbell Curls	3 x 10-12
<i>superset with</i>	
Dumbbell Concentration Curl	3 x 10-12

"I used to go super heavy on biceps, and I got zero results. You really have to forget about how much weight you are using, and focus on the feeling in the muscle, the contractions and the stretches."

HAMMER CURLS

Cody always does some type of hammer curl in his biceps training, to ensure that the brachialis muscle gets proper attention. For this photo shoot, he used a rope attachment on a low cable pulley. In his actual training, he is more partial to dumbbells. He's come up with a rep scheme on those that gives him just the right amount of pump and burn: five reps for each arm, alternating left and right, then six reps performed with both arms at the same time. "I usually curl the dumbbells across my body, right hand toward left shoulder, left hand toward right shoulder, to avoid using my delts too much," he points out.



TRAINING SPLIT

Monday:	Legs
Tuesday:	Chest and calves
Wednesday:	OFF
Thursday:	Back
Friday:	Delts and some legs
Saturday:	Arms and calves
Sunday:	OFF



CONCENTRATION CURLS

There is always some type of single-arm dumbbell curl in a Cody Montgomery biceps workout. He may choose the standard, seated concentration curl, as shown here. Another frequent selection is the single-arm dumbbell preacher curl. "All I am focusing on here is the squeeze, putting my mind into the muscle and working it as hard as I can," he says.

CONTEST HISTORY

2010 NPC Dallas Europa
2011 NPC Ronnie Coleman Classic
2012 NPC Teenage Nationals
2013 NPC Teenage Nationals
2014 NPC Teenage Nationals
2014 NPC Collegiate Nationals
2015 NPC USA Championships
2016 IFBB Arnold Classic
2016 IFBB Arnold Classic Australia

Teenage Winner
Teenage Winner
Light Heavyweight and Overall
Light Heavyweight and Overall
Heavyweight and Overall
Heavyweight and Overall
Heavyweight and Overall
10th Place
Seventh Place

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CODY'S BEST ARM-TRAINING TIP

The best advice comes from people who have made mistakes, and can thus prevent others from repeating those mistakes. Even though Cody is still a pup, he has already learned some lessons the hard way. "I used to go super heavy on biceps, and I got zero results," he recalls. "You really have to forget about how much weight you are using, and focus on the feeling in the muscle, the contractions and the stretches." In fact, if you ever see Cody training arms, you will not be impressed one bit by the weights he uses on most of the exercises. Yet it will be evident that he is feeling every rep, deep down to the last muscle fiber. He puts far more emphasis on both the contraction and the stretch on every rep than most bodybuilders do, often pausing at both points to make sure he's maximized it. And as for the weights not always being "impressive," I think most of us would take Cody's arms, over being able to claim we can use X amount of weight on curls or dips. His biceps are jagged peaks, and his triceps are sweeping and full. Personally, I wouldn't care if I had to use 10-pound dumbbells to get arms like that— would you?



At the 2016 Arnold Classic, he managed to beat two men who have been pros since Montgomery was a small child, Johnnie Jackson and Toney Freeman. It's interesting to note that both those men were also at least twice Cody's age. It was a respectable pro debut and showed that this kid isn't afraid to stand next to anyone.



THE YEAR AHEAD

He may be just 22 years old, but Cody Montgomery has already wrapped up his rookie season as an IFBB pro, and shared the stage with some of the very best in the sport, including two men who have both won multiple Arnold Classic titles and have been runner-up at the Mr. Olympia. Does Cody have that same level of ultimate potential? Considering the improvements he has steadily made each contest season since he was just a high school kid, I'd say we have barely scratched the surface of how good he can eventually be. In the meantime, take some tips on arm training from this sensational young gun, and build your own high-caliber weapons!

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Anabolic Steroids and Sexual Performance

Animal studies and media headlines have colored the image of testosterone as a barbaric, orgy-inducing, manic-phase hormone that causes civil men to pillage and destroy in the throes of lust-driven rage while sporting anatomically disproportionate erections.¹⁻⁴ If such behavior were so dependent upon über-high testosterone surges, then one would conclude that most video game players and developers are spiking testosterone levels that would shame Mr. Olympia contestants.⁵

Before there was interest in using testosterone or anabolic-androgenic steroids (AAS) to promote muscle mass or strength, sages and kings searched desperately for the “male factor” that would restore, enhance or prolong sexual performance.⁶ Bizarre recipes containing dried genitals from predatory and promiscuous animals or any plant that is vagina- or penis-shaped abound in ancient literature. It is little different from today’s focus, where erectile dysfunction treatment is one of the most profitable categories in pharmaceutical sales, production and research; muscle hypertrophy and strength enhancement through exogenous factors is essentially taboo, neglected at best.

RESEARCHERS RISE TO THE OCCASION

The essence of testosterone research in the fields of attraction, sexual arousal and function, is that testosterone promotes and enables a man to engage in intercourse—be it for enjoyment (recreational) or family planning (procreational). The aspects involved are more than “getting a boner,” though that is a well-studied phenomenon.⁷⁻⁹ It begins with the effect of testosterone on a man’s ability to “compete” for the attention of a suitable mate; his desire and motivation to attain his desired mate’s interest; confidence and self-esteem sufficient to present himself; anthropometric features of masculinity (e.g., facial, voice, frame, build); dominance as it relates to his area of expertise (e.g., recognized as a leader or authority); libido and sexual desire; ease of arousal (physiologic as well as genital); erectile function; and sexual function (e.g., avoiding premature or delayed ejaculation). Sexual violence is a different topic, tragically present in society and often blamed on “testosterone,” though the research



LIFE IS A LOT EASIER IF SEX IS JUST ABOUT “GETTING A BONER,” BUT MOST OF US DON’T LIVE A PROMISCUOUS, REALITY SHOW LIFESTYLE.

GETTY IMAGES

suggests that other associations are much more relevant.

Sure, life is a lot easier if sex is just about “getting a boner,” but most of us don’t live a promiscuous, reality show lifestyle. Further, social conditioning and cues, as well as psychological and relationship issues, complicate the sexual act to the point where many individuals suffer anxiety entering or exiting relationships. In Japan, this has led to a nationwide disinterest in sex with a partner, or at all—a condition called *sekkusu shinai shōkōgun* or “celibacy syndrome.”¹⁰ In the United States, this has encouraged the trend among young adults and adolescents to “hook up” rather than attempt to experience sexual intercourse as part of a relationship. Hypersexuality is associated with personal distress and functional impairment.¹¹ Anecdotal reports abound of a frighteningly high number of applicants to online dating sites being married or in a “committed relationship” and seeking affairs, or seeking “hook-ups” with no intention of developing the relationships any further than between the sheets. It is not a new thing.¹²

BODY, MIND AND LIBIDO

Comparing the sexual disadvantages of hypogonadal men (low testosterone) with the research on testosterone’s effects on related mood, anatomy and physiology, it is clear that men with below normal testosterone are at an “apples to apples” disadvantage to men with normal or slightly supraphysiologic testosterone. This is particularly evident in those who suffered from low testosterone prior to birth or from an early age due to genetic conditions, toxic exposure, trauma or other causes.

For the sake of clarity, consider the issues in general terms: physical development—the body; mood and cognitive effects—the mind; sexual desire and arousal—the libido; erectile and ejaculatory function—the “package.”

Testosterone shapes the physical development of the fetus early in pregnancy, resulting in genital development, mental response to stimuli and programming for later physiologic response to hormonal, metabolic or environmental cues. The development of the penis as a distinctly male structure begins in the seventh week of pregnancy, and continues until approximately the 17th week.¹³ This is the time that the fetus begins to produce testosterone and the androgenic metabolite DHT. These hormones are responsible for the development of the penile erectile tissue, scrotum and urethral opening—the “hole” that urine and ejaculate exit.

One issue that is drastically “under the radar” is the effect of endocrine disruptors on the developing fetus in humans. It has been shown that these chemicals, present

in our water supply, food packaging, food products and other environmental sources, affect the receptors that respond to estrogens and testosterone. There is observational data suggesting this has negatively affected the development of the human fetus. In addition, animal and tracking data shows that men produce less testosterone than prior generations.¹⁴⁻¹⁷

PENILE SIZE AND TESTOSTERONE

Two conditions involving penile size or structure relate (and respond) to testosterone—micropenis and hypospadias. Micropenis is what it sounds like, an abnormally undersized penis, commonly between one-half to one inch in length. Hypospadias is when the urethral opening is not near the end of the penis, but on the underside somewhere closer to the body. Both conditions are treated with testosterone

BEFORE THERE WAS INTEREST IN USING TESTOSTERONE OR AAS TO PROMOTE MUSCLE MASS OR STRENGTH, SAGES AND KINGS SEARCHED DESPERATELY FOR THE “MALE FACTOR” THAT WOULD RESTORE, ENHANCE OR PROLONG SEXUAL PERFORMANCE.

in children, with the greatest response during the infancy or preschool years. With treatment, adult penile length averages 10 centimeters (four inches stretched length, the equivalent of the erect length), whereas “normal” men have an average stretched penile length of 12.4 centimeters (five inches).¹⁸ Yes, there is for the lifetime of most males an interest in penile measurement standards, due to the social reward of being “well hung.” Anxiety about genital size causes many men great distress, and it is not restricted to the Western culture. A sample of 367 men in the military between ages 21 and 40 revealed that “genital self-image” (no, that is not a crotch-selfie posted on social media) was strongly associated with sexual anxiety and erectile dysfunction.¹⁹ A related study on the same group determined that almost nine percent in this group of young to middle-aged adults suffered sexual performance problems, and one-third of all men reported experiencing erectile dysfunction.²⁰ Clearly, penis size affects not only a man’s actual dimensions, but can also greatly impact his ability to enjoy and perform sexually. This

affects not only him, but also his spouse/partner.

Testosterone does not have much additional effect on adult penis size. If it did, the Mr. Olympia competitors would not be wearing those posing trunks onstage. However, testosterone deficiency can reduce the girth and rigidity of the penis. In part, this happens because smooth muscle cells that participate in maintaining an erection are replaced with fat cells.²¹ Most people are conditioned to think of Viagra-like drugs (PDE5 inhibitors) to treat erectile dysfunction. Interestingly, PDE5i drugs raise testosterone in addition to dilating blood vessels, and some people still do not respond to PDE5i drugs without testosterone treatment.²² Raising testosterone within the “normal range” increases the vasodilatory (increasing blood flow) signaling system called eNOS. However, this effect is lost with supraphysiologic testosterone or DHT dosing.²³ This may account for the reports of erectile dysfunction in some individuals misusing anabolic steroids in concentrations well above “normal.”

OTHER PROBLEMS DOWN UNDER

Another sexual aspect fascinating to most is ejaculation; an act filled with intense physical, mental and emotional effect. Ejaculation occurs with various delay and stimulation, even for the same person. There is a typical duration of intercourse prior to ejaculating, contrary to locker room bragging about marathon sessions of intercourse. According to published research, the average man ejaculates approximately seven minutes after initiating intercourse.²⁴ Premature ejaculation, defined as ejaculating quicker than desired and causing distress (within one to two minutes or less), affects between 15 and 20 percent of all adult men.²⁴⁻²⁶ Various treatments for premature ejaculation are underway, including topical anesthetics and PDE5i drugs.²⁷

One might imagine that premature ejaculators have low testosterone, given the self-imposed shame associated with the condition. However, it is the opposite—they have higher (normal) testosterone; and delayed ejaculation can be a sign of testosterone deficiency.^{28,29} In terms of success as a breeder, those who can complete the act quickly are more likely not to be interrupted by hostile competitors (or a cellphone nowadays), and may be able to “rise to the occasion” again more rapidly.

Attraction is based upon one person’s appreciation of another’s physical appearance, implied health and potential, and demeanor. Most research has looked at how women rate a man’s appearance or attraction. It should be of little surprise that there is a lot of variability

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TESTOSTERONE

in response, but some general trends are present. Women are attracted to a man with masculine facial features, voice, broad shoulders, a narrow waist and the implied ability to be healthy and able to work. This is particularly true if they are interested in uncommitted sexual relationships.³⁰ These features all reflect testosterone's effect during maturation, as anyone who has had a teenager going through the physical changes of adolescence can attest. Muscle building requires substantially higher testosterone than the average level, so a well-developed body reflects optimally functioning testes.

AROUSAL, DESIRE AND SEXUAL PROGRESSION

Testosterone is involved in providing a man the equipment, ability and programming to perform sexually. The last ingredient is desire, or becoming aroused. Arousal is often defined as having an erection in a sexual context. However, arousal begins with signs that precede the onset of an erection many times, in underappreciated ways. Animal studies depend upon certain "mating calls" or the production of pheromones. Though it is not as well studied in humans, arousal is the most testosterone-dependent feature of the sexual progression. Based on animal data, it appears that the ability to develop an erection, and "mount" a sexually receptive female is well preserved, even in males with below-normal testosterone. However, being in a "sexy" environment, in and of itself, will not induce arousal as easily when testosterone is low.³¹ It is a consideration in diagnosing men with testosterone deficiency. Humans are socially conditioned, and respond to cues that overcome hormonal deficiencies at times. Lack of libido and difficulty in becoming aroused are signs of testosterone deficiency, but many men will not recognize the change as it is insidious (i.e., subtle or slowly progressing), and they develop a routine with a partner of Saturday night sex or whatever as a scheduled event. The arousal is replaced with an expectation based upon cues.

Testosterone is a sex steroid hormone, and has critical functions in that aspect of life for nearly all men. The muscle building and body composition effects are not necessarily relevant to perhaps a majority of adults. However, without adequate testosterone, a highly valued component of life, relationships, and pleasure are detrimentally affected.

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Activate Your Brain for MAXIMAL GAINS!

What if all the training you've ever done totally overlooked the one body part that absolutely must be targeted to truly maximize the training effect and obtain every training goal you've ever desired? At first thought, you would probably contemplate all the body parts in your mind that you regularly train—pecs, shoulders, biceps, quads, etc.—and then think this statement clearly does not apply to you because you train every body part as hard as you can, thus maximizing all potential gains. You would probably also ponder your well-balanced diet, and the fact that you get plenty of sleep, all while taking the right blend of nutritional supplements, guaranteeing optimal results. Even if all of that is true, you're still not doing everything possible to get the utmost from your training because you still haven't directly trained your brain. That's right, your brain! And I'm not referring to the concept that "knowledge is power" and that you should read more and study more, and then you'll train more intelligently to get bigger and stronger.

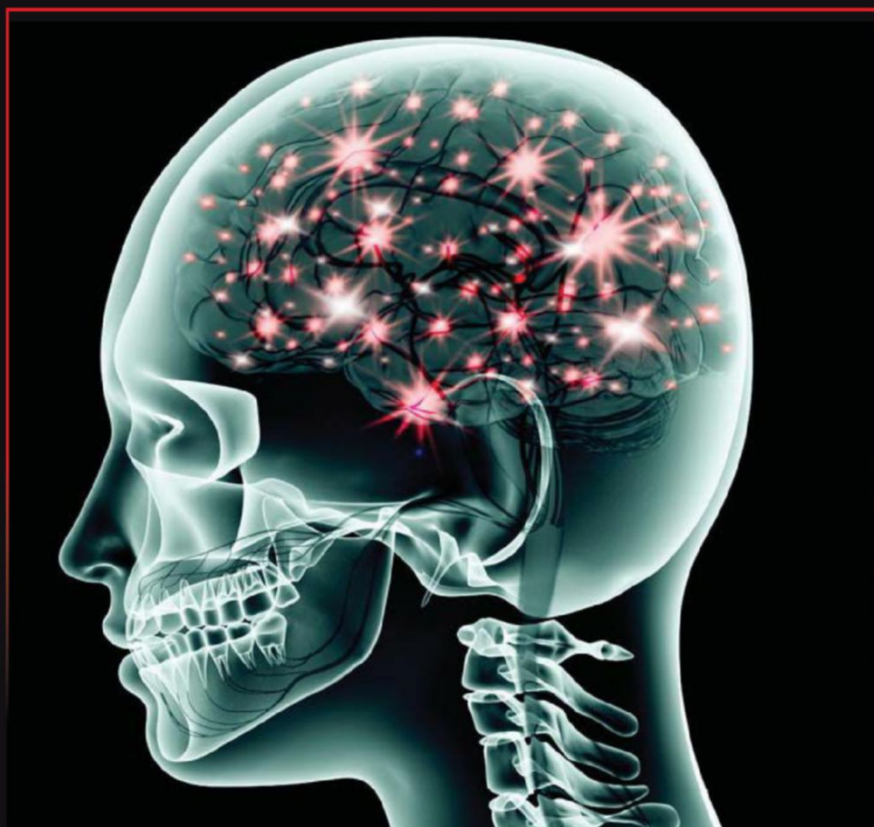
PRIME YOUR BRAIN RIGHT BEFORE YOU TRAIN

No, I really mean a workout for your brain utilizing the new groundbreaking device called Halo Sport recently released by the company Halo Neuroscience. The device, technically referred to as a transcranial direct current stimulator (tDCS), works by safely applying very small amounts of electricity—around two milliamps—to a specific region of the brain known as the motor cortex. The electricity applied to the brain activates certain cells within the motor cortex known as neurons, which are the fundamental components of the nervous system that transmit signals from the brain throughout the body. Signals from the brain are propagated down the nerve via electrical signaling, where they are ultimately converted at the nerve ending into chemical signaling by way of small chemical messengers known as neurotransmitters. Muscle is the primary tissue activated by motor cortex neurons—a process known as neural drive—where the motor cortex sends an electrical signal to the muscle, causing the muscle to contract generating force.

Therefore, supplying the appropriate amount of electricity to motor cortex neurons with Halo Sport increases the propensity of each neuron to fire, giving the potential

to trigger greater muscular contraction for superior muscular performance. However, preparation of the motor cortex for activity with Halo Sport will only improve muscular performance when immediately followed by training or exercise. The combination of Halo Sport neurostimulation with exercise triggers a process known as neuropriming, which activates the connections between motor cortex neurons and the trained muscle groups, ultimately improving neural drive. Over time, just as muscle increases size in response to weight training, neuropriming the motor

cortex induces the brain to respond by rewiring itself—a process known as neuroplasticity. The reconfiguration of neurons within the brain results in connections between the motor cortex and muscle tissue that are stronger and more coordinated—boosting overall muscular function, which supports superior strength, power and endurance. In addition, the streamlined connection between the motor cortex and muscle sparked using Halo Sport enhances motor skill acquisition while sharpening body movement, likely improving athletic performance.



THE RECONFIGURATION OF NEURONS WITHIN THE BRAIN RESULTS IN CONNECTIONS BETWEEN THE MOTOR CORTEX AND MUSCLE TISSUE THAT ARE STRONGER AND MORE COORDINATED—BOOSTING OVERALL MUSCULAR FUNCTION, WHICH SUPPORTS SUPERIOR STRENGTH, POWER AND ENDURANCE.

GETTY IMAGES

IMPROVE EXPLOSIVE STRENGTH AND POWER

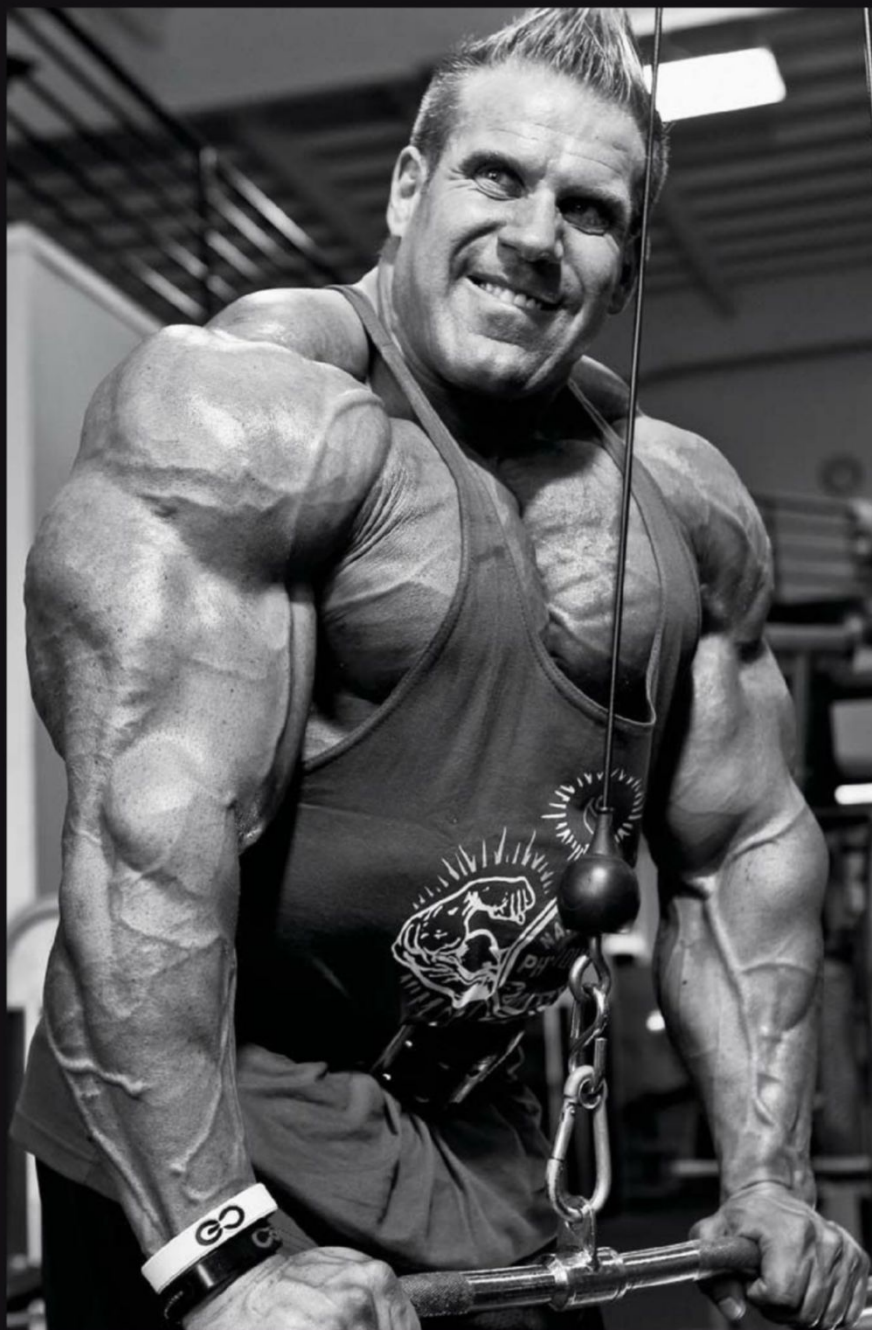
Neural drive is the electrical signal sent from the motor cortex to the muscle that causes muscular contraction, generating muscular strength and power.¹ More neural drive increases the rate at which muscular force is developed², which improves explosive strength. This type of strength can also elevate athletic performance by improving the ability to perform explosive activities such as throwing or jumping, while also enhancing the capability to accelerate or change direction. Furthermore, specific weight-training techniques focused on explosive strength development can potentially increase strength levels while also generating greater muscle growth as well.

THIS TECHNOLOGY UNIQUELY IMPROVES MUSCULAR ENDURANCE BY TARGETING THE BRAIN SO YOU CAN PUSH YOUR BODY TO THE LIMIT FOR MUCH LONGER PERIODS OF TIME.

Studies have shown that tDCS can increase motor unit activation, indicating that this form of brain stimulation may also boost neural drive¹, enhancing explosive strength and power. To investigate the potential effectiveness of the Halo Sport neurostimulation system to increase explosive strength, a study performed by Halo Neuroscience administered two milliamps of tDCS to the motor cortex of test subjects for 15 minutes using Halo Sport.³ The group receiving brain stimulation showed significantly greater improvement in muscle force generation in an isometric lateral pinch force task, relative to the control group, both during stimulation and 10 minutes after stimulation was complete. This result reveals that the Halo Sport device can improve explosive power, making it a valuable resource for individuals seeking to improve explosive strength.

ELEVATED BRAIN FUNCTION ELEVATES ENDURANCE

In addition to boosting explosive strength, Halo Sport also combats muscular fatigue. Muscle fatigue is the result of the reduced muscular strength brought on by exercise.⁴ Muscular fatigue occurs locally within the muscle cell because of a depleted energy supply—such as glycogen or ATP—within the muscle cell or due to the accumulation of metabolites produced in the muscles during exercise—such



as lactate—that precludes further muscular contraction. Muscular fatigue can also be triggered by the brain's inability to activate the requisite muscle groups needed to perform the desired movement.⁴ In fact, reduced motor cortex activity has been shown to reduce muscle force production.^{5,6}

Recently, a series of experiments investigating the positive impact of tDCS on muscular endurance demonstrated that the use of this technology significantly improved endurance.^{7,8,9} For instance, one study by Angius et al.¹⁰ showed that tDCS of the motor cortex improved each participant's time to exhaustion

while performing isometric knee extensions, verifying that brain stimulation can be an effective method for increasing endurance.

Despite the brain's evident impact on endurance improvement, it has been snubbed by many, who instead focus exclusively on their muscular and cardiovascular systems instead of the brain. When, in fact, the brain should be a prominent target for improving exercise endurance. The advent of Halo Sport will certainly change that, as this technology uniquely improves muscular endurance by targeting the brain so you can push your body to the limit for much longer periods of time.

IMPROVE ATHLETIC PERFORMANCE

One of the more remarkable applications of Halo Sport is the potential to enhance motor skill acquisition while coordinating more efficient body movement for better athletic performance. By stimulating specific areas of the motor cortex with tDCS, scientists have already improved fine motor skill function such as typing^{11,12} and influenced gross motor properties, reducing fatigue while also increasing explosiveness, as previously mentioned.^{10,3} In addition, other researchers have shown that applying tDCS can improve certain athletic skills like putting in golf, as test subjects who trained their putting stroke with brain stimulation putted significantly better than their counterparts who putted without stimulation.¹³

While the aforementioned study showed improved sport performance, golf is not exactly the most explosive of sports. So, to see if tDCS could also enhance execution of a more ballistic movement, Halo Neuroscience investigated whether Halo Sport could improve ski jumping.¹⁴ In this study, subjects received neurostimulation treatment in the form of tDCS with Halo Sport during their normal training routine. Test subjects who received stimulation showed significantly greater improvement in their jumping ability compared to non-

stimulation athletes. The stimulation improved jumping force by an additional 70 percent and body coordination by an additional 80 percent over the control group receiving no actual stimulation. Altogether, the result from this study clearly shows the extraordinary ability of non-invasive brain stimulation to improve athletic performance.

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For most of Michael Rudolph's career he has been engrossed in the exercise world as either an athlete (he played college football at Hofstra University), personal trainer or as a research scientist (he earned a B.Sc. in Exercise Science at Hofstra University and a Ph.D. in Biochemistry and Molecular Biology from Stony Brook University). After earning his Ph.D., Michael investigated the molecular biology of exercise as a fellow at Harvard Medical School and Columbia University for over eight years. That research contributed seminally to understanding the function of the incredibly important cellular energy sensor AMPK— leading to numerous publications in peer-reviewed journals including the journal *Nature*. Michael is currently a scientist working at the New York Structural Biology Center doing contract work for the Department of Defense on a project involving national security.



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The Art of Smuggling

PAPER STEROIDS

Do you remember the drug acid, street slang for LSD (lysergic acid diethylamide)? It's not quite as popular as it was decades ago, but still circulates, I understand. While the drug takes on many forms these days, traditionally it was infused into blotter sheets. This is a type of highly absorbent paper, which is often used in the laboratory to soak up small concentrations of liquids, or with cosmetic applications. With acid, the very potent drug is diluted in a liquid and soaked into the sheets. The liquid dries,

leaving the drug behind in the paper. The sheets can then be broken apart into little squares and consumed. Well, years back, smugglers started applying the same technique to steroids. Oral drugs like methandrostenolone (Dianabol), Winstrol (stanozolol) and oxymetholone (Anadrol) were simply used in place of LSD.

These "paper steroid" sheets usually contain 100 pills worth of the drug, sometimes more. They are also very thin, and can fit easily inside a small envelope. The attraction to the steroid buyer is clear. Letter correspondence is highly voluminous for customs in any country to deal with. Further, the prize (seizure) for finding drugs in small letters is, well, small.

There's likely no major attention-getting bust to be found. As such, these types of steroids have enjoyed a high rate of successful clearance in the past. Customs officials have, of course, been on alert for blotter sheets for decades. They will probably assume your letter contains acid, should they find it. This is also illegal, of course, so don't think this is foolproof.

While paper steroids may remain attractive for smuggling purposes, they may not be the most ideal from a quality standpoint. The fact is, this type of product is inherently open to inconsistency. Unless it is made just right, the liquid carrier could absorb or evaporate off unevenly. While I'm sure some producers do make a high-quality product, with many others I suspect you'll notice a high dose on one part of the sheet, and a low dose on another. Still, the lower rate of customs interdiction has been attractive enough for many customers to flock to these services.



OFFICIALS ARE ALWAYS ON THE LOOKOUT FOR SUSPICIOUS PACKAGES. IF YOU ARE BREAKING THE LAW AND ATTEMPTING TO BUY STEROIDS WITH THESE METHODS, YOU ARE STILL PLACING YOURSELF IN SERIOUS LEGAL RISK!

STEALTH INJECTABLES

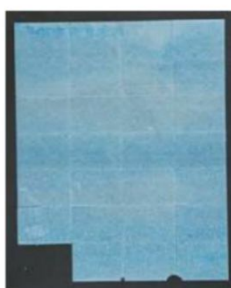
This is another concept similar to paper steroids. The objective here is to get injectable steroids, which are normally placed into bulky glass vials, into personal letters. To do this, small flat plastic or foil pouches (sachets) are filled with steroid oils. These typically hold five milliliters of solution, though other sizes have been used as well. The outside of the pouch might be unlabeled, or in some cases designed to resemble a small cosmetic product, such as a facial lotion or an essential oil. Several of these pouches can fit between a few sheets of paper, which are then folded inside a small envelope. The buyer on the other end will transfer the solution into syringes, or their own sterile vials, for later use.

The attraction here, again, is obvious. These products are far more likely to get into your mailbox than padded envelopes filled with glass vials. What about the quality concerns, though? First, you have the risks of dealing with an underground company. You never know if pharmaceutical-grade drugs are actually being used, or if the products are made under sterile conditions. The vast majority of the drugs sold on the underground are made outside of real pharmaceutical labs, so these concerns are quite valid. So this isn't a knock against makers of stealth injectable specifically. As they say, know your source. Otherwise, I can't say I've ever found a specific issue, outside of small doses of plastic chemicals in the solutions, probably

during sealing. You probably have this with many consumer goods in plastic, though, and the levels were low when I ran the testing.

GAY LUBE OIL

Sometimes, even a seemingly innocent consumer product isn't quite what it seems. This was probably never truer for bottles that were being shipped around the world nearly a decade ago. On the front of their tall,



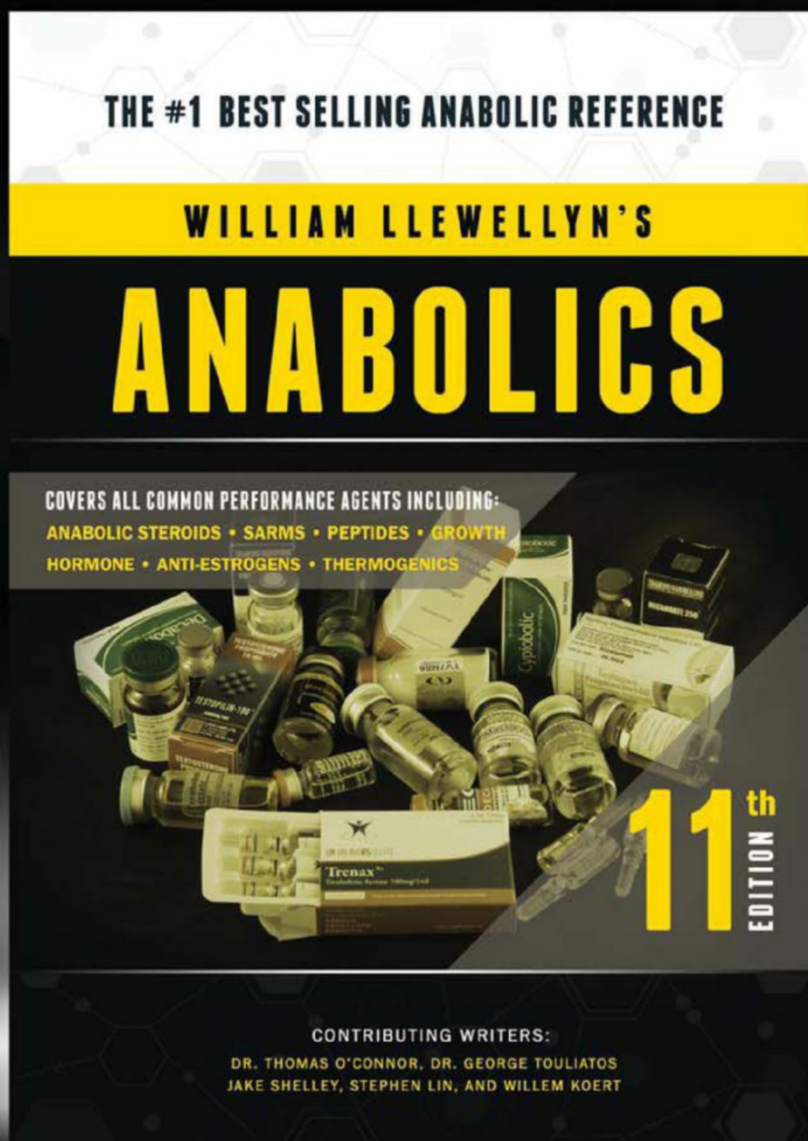
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colorful labels were three bold words: "Gay Lube Oil." This was supposedly a sex product for gay men. What was inside, however, was quite different. You know where this is going. The bottles were filled with steroid oils. These were essentially bulk containers of common steroid esters like testosterone, boldenone, nandrolone, trenbolone, etc. The idea was a little offensive, perhaps. I'm guessing the originator was hoping the predominantly straight men working customs would be off-put by the products, and not look too closely at them.

Australian customs officials uncovered this smuggling method back in 2008. I suspect it worked well for a while, though. Years earlier, I spoke with an individual who was using it (I don't think he was the only one). This guy was a medium-scale producer, and sold bulk injectable steroid oils to dealers in high-risk regions. The buyers were separately given instructions and packaging materials so they could rebottle and label the oils upon receipt. Essentially, this was a ready-made, underground lab operation. This particular method seems long gone now, although Aussie officials have reportedly uncovered steroids secreted in many different products since, including herbal supplements, green tea and facial cream.

IN CLOSING

As we can see, steroid smugglers can get quite creative. Don't worry. These tricks are all well known to customs officials around the world. I haven't revealed anything that should put consumers at risk. Because of this, I would also not say any of these methods are safe. While such methods may reduce the chance of customs interdiction, officials are always on the lookout for suspicious packages. If you are breaking the law and attempting to buy steroids in such ways, you are still placing yourself in serious legal risk! Just ask MD's resident legal expert, Rick Collins, about the many unfortunate people who have been caught trying to import steroids. And most fundamentally, of course, I'd never advocate that anyone break the law. Still, I hope you found this review interesting. As always, be safe.

Got a question for William Llewellyn? You can ask him directly on the MD website and have William personally answer your question! Go to www.musculardevelopment.com, MD Forums, MD Staff and Pros, Q and A for William Llewellyn.

William Llewellyn helped develop ROIDTEST™, an at-home steroid testing kit. His latest book (*ANABOLICS 11th Edition*) is due out soon. Visit www.anabolicsbook.com for more information.

Steroid With the Least Side Effects?

I have not taken steroids yet, but I see friends using them and making great gains. I have decided I don't want to stay natural forever. I want to try steroids at least one time. But I am not sure what to buy for my first cycle. What I really want to know is, what steroid has the least side effects? I'm a 25-year-old male with seven years training in.

The answer to this question really depends on what you mean by side effects. As you likely know, there are many potential areas of concern here. In my experience, people are generally focused on one of several specific things. With this in mind, I'll break down my personal nonmedical opinions in these key areas.

Balding: I'd say I get more questions from men concerned about losing their hair than about any other side effect. Most guys get into anabolic-androgenic steroids (AAS) with an interest on improving their aesthetics. This usually doesn't involve a desire to trade hair for muscles, of course. The bad news is that if you are genetically prone to hair loss, ALL anabolic steroids can potentially accelerate the process. It is mediated by the same receptor that controls muscle growth, after all. Some drugs are milder than others, though. Nandrolone, oxandrolone and methenolone come to mind. But none are benign in this regard. The good news is that if you are NOT genetically prone to hair loss, AAS use is unlikely to give you

a head like Bruce Willis. Figuring out if you have similar "head genetics" as Mr. Willis is a more complex discussion I'll leave for another time.

Gyno: Gynecomastia is another cosmetic issue, but like hair loss, scares a lot of people. Most men don't want to grow breasts. Those who do, I suspect try to find more efficient means. This side effect is specifically linked to a steroid's level of estrogenicity. Testosterone, Anadrol and Dianabol are the biggest offenders here. Many other AAS can't convert or act as an

THE BAD NEWS IS THAT IF YOU ARE GENETICALLY PRONE TO HAIR LOSS, ALL ANABOLIC STEROIDS CAN POTENTIALLY ACCELERATE THE PROCESS. THE GOOD NEWS IS THAT IF YOU ARE NOT GENETICALLY PRONE TO HAIR LOSS, AAS USE IS UNLIKELY TO GIVE YOU A HEAD LIKE BRUCE WILLIS.

estrogen, though—such as Anavar, Primobolan and Winstrol. Others still can convert to estrogen, but are still generally milder, like Equipoise and nandrolone. And then you have a collection of modern anti-estrogens and aromatase inhibitors, which can be used to mitigate the issue of estrogen quite well. With this side effect, drug choice is everything.

Liver: Hepatotoxicity is a fancy word for liver toxicity. Most of us have heard about those rare cases where AAS abuse has led to serious issues with liver damage or cancer.

The important thing to know here is that this side effect is largely related to oral anabolic steroids ... drugs that have been chemically modified to survive first-pass metabolism through the liver. Drugs like Anadrol, Anavar, Dbol and Winstrol stand out here. A few orals aren't really liver toxic, like Andriol and Primobolan. But these are also very weak, and not commonly used. In comparison, injectable AAS like testosterone, nandrolone, boldenone and methenolone are quite strong, and not regarded as appreciably liver toxic.

Cardiovascular: Steroids can negatively influence your cholesterol values, blood pressure and several other risk factors for cardiovascular disease. This is a risk inherent with AAS abuse, though some drugs are better or worse than others. The testosterone tend to be the least troublesome here, as they provide both androgens and estrogens to the body. The latter sex steroids are important to HDL (good) cholesterol management in both men and women. The most problematic tend to be the orals. Any AAS that displays appreciable hepatotoxicity is likely to also be pretty harsh on your hepatic cholesterol management, as well as other cardiovascular disease risk factors.

There you have my quick rundown of common areas of concern. Of course, these side effects are not exclusive, and all nonmedical AAS use carries with it measurable risk. With that stated, I hope you found the information helpful. As I commonly recommend to readers, it is best to be slow and careful in your decisions, and always make sure health stays as one of your primary concerns.

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A REVOLUTION IS COMING

Q: *It's time for my New Year's resolution, so I'm shopping for a weight-loss supplement. There are a ton of them on the market ... and some of them come in a fancy pill. Is one of them actually better than the other? And do any of these fancy pills really make a difference? Give me the hard facts and the science!*

A: Great question! There's really no short answer. The fact is, many weight-loss supplements on the market are loaded with stimulants and have key ingredients that are not actually scientifically studied! The good news is that these impostors are easy to find. They always hide behind proprietary blends and never reference an actual scientific study on humans. Some of them grab your attention by way of fancy delivery systems and over-the-top scientific images that are, in *their* case, more fiction and less fact.

However, MuscleTech® is the one brand that you can always trust. They don't hide behind proprietary blends so you always see what you're getting, and they always show their study results directly on the label. And since you asked, I'll tell you about their latest weight-loss supplement that actually backs up their claims with science you can believe in!

THE SCIENCE OF IT ALL

Check this out: Hydroxycut® SX-7® Revolution – Ultimate Thermogenic! After 21 years of being an industry leader, MuscleTech® has raised the bar once again. Hydroxycut® SX-7® Revolution is the world's first side-by-side, dual-delivery combination pill that combines the power of liquid and powder in one pill! This dual-delivery technology changes the game. It physically separates and delivers distinct active ingredients— something that has never been done before!

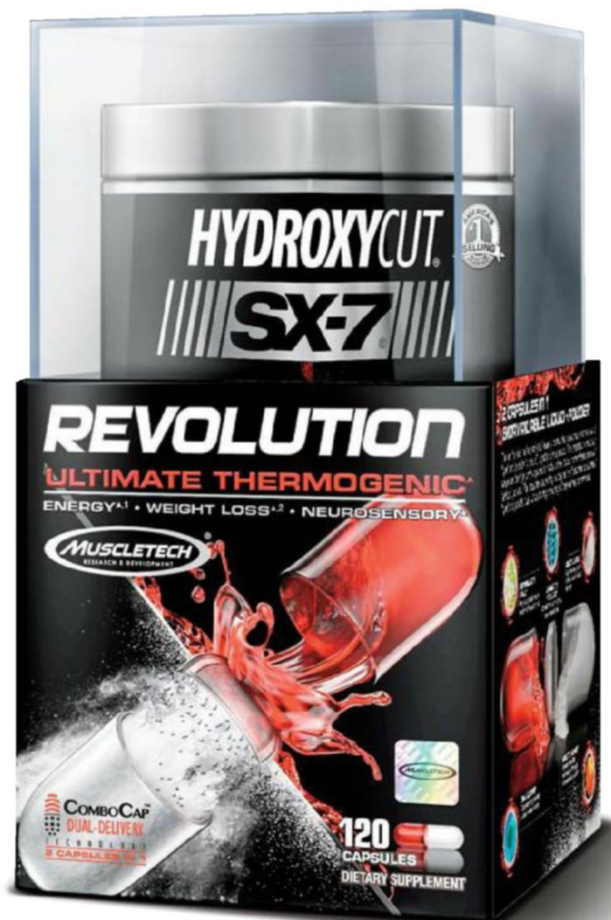
So, you might be thinking— this sounds cool, but what makes dual-delivery technology so different? Normally, you would have to take a liquid capsule and a powder caplet separately, and this is where Hydroxycut® SX-7® Revolution separates itself from the competition. Using the world's first hermetically sealed separation membrane, Hydroxycut® SX-7® Revolution physically separates liquid and powdered ingredients— giving you the best of both worlds, in one cutting-edge combination capsule!

THE FACTS DON'T LIE

And here's the science you're looking for! Hydroxycut® SX-7® Revolution combines premium 95 percent CLA with the key weight-loss ingredient *C. canephora robusta*. In two separate scientific studies, subjects using 200 milligrams of *C. canephora robusta* lost 10.95 pounds (versus 5.40 pounds for placebo) in 60 days with a low-calorie diet, and 3.7 pounds (versus 1.25 pounds for placebo) in an eight-week study with a calorie-reduced diet and moderate exercise. Most thermogenic formulas don't have a scientific study backing their key weight-loss ingredient, let alone two!

Hydroxycut® SX-7® Revolution also supplies the purest form of CLA available— Clarinol® A-95 CLA. Clarinol® CLA contains the highest concentration of active CLA fatty acids. Then, utilizing a precise dose of ultra-potent caffeine anhydrous, Hydroxycut® SX-7® Revolution also helps to enhance mental focus and deliver an intense burst of energy so you'll train with maximum intensity after just one dose!

So if you're tired of weight-loss supplements falling short, false promises and formulas hidden behind proprietary blends, then stop wasting your money and start the new year off right with Hydroxycut® SX-7® Revolution!



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First Show to Pro in 18 Months

Most people don't know too much about my early days of competing before I turned pro, so here's how it all happened. I first walked into Metroflex Gym in December of 1989. I had just started working for the Arlington, Texas, police department and had been using the little gym at the station. Some big guys there said I had to go check out Metroflex, where they trained. The first day I walked in there, the owner, Brian Dobson, took one look at me and said, "You have got to compete in bodybuilding!" He said I already looked better than most of the guys who did compete already. I told him I wasn't interested in that. I'd heard you have to take a bunch of drugs, and they were real bad for you. But I came back every day. On the fourth day, Brian said he would give me a free membership if I would compete. Since I didn't have much money at the time, that sounded pretty good to me.

He wanted me to do the AAU Mr. Texas on April 7, because that was a show he did every year, and he was doing it again. I didn't know anything about dieting. Up until just before this, I had been working at Domino's Pizza for a long time. For a while, I ate only pizza. I couldn't afford anything else. Then my buddies and I figured out we could trade the pizza for burgers or KFC, because we were all pretty sick of eating pizza. From eating two or three times a day, Brian had me go up to four to five meals a day with chicken, rice and tuna out of the can. It was about as basic as it gets. I didn't have much fat to lose anyway. Not too long before this, I had tried out for the FBI. For my height of 5'11", they said I couldn't be any heavier than 188 pounds. I starved myself, but the lightest I could get was 205. I started my contest diet out at 210, and wound up being 215 for the show. Eating more definitely made me gain muscle. I didn't do any cardio for that show, or for any of my shows as an amateur. Metroflex didn't even have any cardio equipment. I remember once I turned pro, I bought my own stationary bike that I had outside at my apartment. Later on, I bought all the cardio machines for Metroflex. I should mention that a man named Marvin Weinstein taught me how to pose. Brian would bring me to his house three times a week, and he had all these mirrors set up in a shed behind his house that we used.

April came, and I did the Mr. Texas. Since it was my first contest, I entered the novice division, where I won my class and the overall. A short guy named Kelly won the open, and I think he was pretty glad I didn't enter the open division. I would have beaten him pretty easily. People were freaking out at how good I looked and couldn't believe it was my first show. I did a few more shows that year: the Metroflex Classic at the UTA campus, the Lone Star Classic, the Mr. Dallas-Fort Worth and the Western



"BRIAN SAID HE WOULD GIVE ME A FREE MEMBERSHIP IF I WOULD COMPETE. SINCE I DIDN'T HAVE MUCH MONEY AT THE TIME, THAT SOUNDED PRETTY GOOD TO ME."

Cup. I had to take a plane to El Paso for that one, and it was the only one I didn't win! I got second.

Brian said I was already good enough for the NPC Nationals, and I was qualified, so I did it in the fall of 1990 and got third place behind Jerry Rodgers and Edgar Fletcher. It was drug tested that year. I beat a lot of good guys, including Matt Mendenhall, Bob Cicherillo and Chris Cormier. Flex Wheeler was walking around the show all big and fat, talking about how he was going to win it the next year in 1991.

In 1991, I did the USA in July and got 14th place. The next show I did was the Nationals again. It was a huge heavyweight class of 43 men. I got fourth place behind Kevin Levrone, Flex and Paul DeMayo. They told us if we could go take a drug test and pass, they would send us to the Universe, the actual name being the IFBB World Amateur Championships. Out of all those 43 guys, I was the only one who went and took the test! That meant I was off to Katowice, Poland with team USA: bantamweight Earl Snyder, lightweight Jose Guzman, middleweight Yohnnie Shambourger and light-heavyweight Ron Coleman. Lucky for me, Ron was my roommate— because the place they had us staying was terrible. We couldn't even get rice or chicken. All they had for us was deli meat and bread! Ron's wife had packed a bunch of frozen chicken, and he was kind enough to share with me. We got ready for the Universe on chicken and pancakes. I won my class and turned pro, and so did Jose. Team USA also won the team competition for a group posing routine we put together at the last minute.

Maybe the funniest thing about all that was that a few weeks before, I went to Orlando for the Mr. Olympia to help out and work security for the IFBB and promoters of the show. A bunch of people were asking me if I was competing in the show. I told them all the same thing:

"No way, those guys are way ahead of me! I'll never be able to get that big."

But I sure did!

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MD TRAINING CAMP

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OFF-SEASON: 4 WAYS TO DO IT RIGHT!

1. INJURY PREVENTION AND MAINTENANCE

Staying injury free is critical to making consistent gains. Warming up enough and using good form is great, but you need to be a little more proactive than that if you take bodybuilding seriously. I see a chiropractor every other week to get adjusted, and I also get a deep-tissue massage once or twice a month to break up adhesions and scar tissue that anybody who trains heavy and hard is going to accumulate. I would go every week if my budget allowed for it. Since it doesn't, I got myself a RumbleRoller after seeing Antoine using one in an MD video, and I use it every week both before and after my leg workouts. I roll my back, my quads and my iliotibial (IT) bands. It hurts, but those spikes (which a regular foam roller doesn't have) dig in almost as deep as a massage therapist does. I also stretch every day to maintain good mobility.

2. DETOX

No matter whether we're talking about over-the-counter supplements or otherwise, you really need to give your system a break at regular intervals. It's called the "off" season for a reason, people! Personally, I like to take four to five weeks off everything, two or three times a year. This also makes everything work more efficiently when you go back on.

"If you aren't making gains, typically your nutrition is lacking something. Dorian Yates was an inspiration to me in the way he kept training and food logs year-round. I keep track of my meals, and on top of that I don't eat much junk."



3. HAVE A NUTRITIONAL PLAN

A lot of guys just eat whatever the hell they want in the off-season, and really have no idea what amount of calories, protein, carbs and fats they are taking in on a daily basis. It sounds fun, but the problem with it is you have no baseline to make adjustments from. If you aren't making gains, typically your nutrition is lacking something. So how can you increase any variable when you don't know what they are? Dorian Yates was an inspiration to me in the way he kept training and food logs year-round. I keep track of my meals, and on top of that I don't eat much junk. I have one or two cheat meals a week even in the off-season. It's just a lot easier to take in specific amounts of nutrients that way, and making steady progress comes from that. The bottom line is that if you don't know how much you're eating, you can't make adjustments when progress stalls. You'd only be guessing, and good luck with that!

4. HAVE A TRAINING PLAN

It drives me crazy when guys tell me they just "go by instinct" in the gym. Again, as with their nutrition, they're just winging it with no plan. I like to say, "If you fail to plan, you plan to fail." I log all my workouts just like I do my meals. This allows you to look over what you've done and again, make changes when you aren't making progress toward your goals. I like to rotate exercises, volume, rep ranges and so on. If I didn't write these variables down, how would I know exactly what I've been doing and for how long, so I could switch things up in specific ways? Even if you have great genetics and work hard, at some point you will be up against other gifted, hard workers. What will give you the advantage over them? Having a plan, being detailed and meticulous, and being dedicated enough to keep track of everything. This leaves no room for error, and guarantees success whether we're talking off-season or pre-contest.

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MD TRAINING CAMP

Dennis WOLF

HEAVIER WEIGHTS BUILD SIZE

Do I really need to become very strong to get bigger? I really don't care how much weight I can bench press or squat, and I think lifting heavy is dangerous. Can I get the same results by using other techniques like slower reps, drop sets and supersets? Also, my legs are already pretty big and I don't plan on competing, so can I focus more on my upper body?

My friend, you don't need my permission to do anything. If you want to only train arms, chest or whatever, that's your decision. If you did want to compete in bodybuilding, you would have to make sure all your muscle groups were in proportion to each other. I actually find it funny when some bodybuilders get upset that there are guys who don't train their legs or their back, because they only want to look good for the beach or the nightclub. Who cares? If that's what they want to do, God bless them! At least they are working out and not being a couch potato.

If you plan on growing, you will have to use heavier weights as time goes by. If you have 14-inch arms and you are curling 20-pound dumbbells, for example, I assure you that you will never get your arms up to 17 or 18 inches by curling those same 20-pound dumbbells—I don't care how slow your reps are or if you superset them with barbell curls and cable curls. Those techniques are really only effective for more experienced lifters who have already become much stronger, and realistically aren't going to get a whole lot stronger. I mean, if some guy can handle 180-pound dumbbells for incline presses after 20 years of training, that's pretty impressive. You can't expect him to keep getting stronger until he can press 250s! As long as you warm up properly, use good form and don't do very low reps in the range of one to five, you shouldn't get hurt.



PRESSING BEHIND THE NECK: TOO DANGEROUS?

You are known for your amazing shoulders. Some people say that nothing builds mass on the shoulders like behind-the-neck presses, but others say they are too dangerous to the rotator cuff and should be avoided. How do you feel about pressing behind the neck?

I did those for a long time, but I stopped about four years ago. I think once you get to a certain level of strength, pressing behind the neck does become dangerous. It started feeling more and more unnatural for me to have my arms back at that angle, and I found I was also feeling some pain in the shoulders the next day. Since then, I have been doing seated dumbbell presses or presses to the front, and there is no pain or weird feeling anymore. Pressing behind the neck is probably OK if you're a beginner or intermediate bodybuilder, but after that I don't think it's a good idea.



"Pressing behind the neck is probably OK if you're a beginner or intermediate bodybuilder, but after that I don't think it's a good idea."

TOP: PER BERNAL, BOTTOM: GREGORY JAMES

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TRAINING CAMP

Dexter JACKSON

TRAIN SMART AND SAVE YOUR JOINTS

Dexter, which is better, pyramiding up or down? I like to warm up and then get right to my heaviest set, which lets me use the most possible weight. So far, my gains have been great and my joints feel fine except for a little soreness in my elbows and knees. I'm 23 years old, and this older guy (probably around your age) keeps trying to warn me that I'm going to get hurt eventually, using so much weight. But I don't know if he's really trying to help, or if he's jealous and wants to sabotage me because I already look bigger and better than he does! That's why I am asking you.

I always pyramid up, and I am one of the few guys my age who has been training and competing at my level as long as I have who has never torn a muscle. I do have a little joint pain, but there's no way to avoid that. It's just wear and tear from heavy weights over many years. Pyramiding up makes the most sense to me because it makes you warm up more, and that's never a bad thing. Another thing to consider is that nobody is always equally strong all the time. So your "heaviest set" might be with more or less weight, from workout to workout. If you're only warming up enough to start off with what you think is going to be your heavy set, you might end up with a weight you thought you would get eight to 10 reps with, but this time you only get four to five.

As far as using the heaviest weights you possibly can all the time, that's something that seems great now— but over time, your joints might tell another story. At 23, you feel invincible and indestructible— get back to me when you're 43!

The bottom line is, train smart and you'll be in this game a long time. Otherwise, you might be that guy telling the young kids in the gym how big and strong you used to be, before you wrecked your joints and tore a bunch of muscles.



"Using the heaviest weights you possibly can seems great now— but over time, your joints might tell another story. At 23, you feel invincible and indestructible— get back to me when you're 43!"



SMOKING WEED, DRINKING ALCOHOL AND BODYBUILDING

I know that to be the best bodybuilder you can be, staying sober is the best idea. But for those of us who don't take bodybuilding quite as seriously and aren't trying to be a pro, which would you say is worse for a bodybuilder and why: smoking weed or drinking alcohol?

I can't say I have a lot of experience with either, but I would have to guess that alcohol is worse. Both will raise your estrogen levels, but alcohol will also do a number on your liver. Some bodybuilders do other things to get big, and use certain items that can also be tough on the liver. So that's double the damage if you drink, too. The problem I seem to see more often with guys who smoke regularly is that they aren't always the most highly motivated types. In the end, it's all about moderation. Too much of anything can be bad for you. Whatever you do, try to keep it limited to "occasional" use. Otherwise, even though you might not take bodybuilding as seriously as some of us, I guarantee you that you won't see much in the way of results from your training.

PER BERNAL





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MD TRAINING CAMP

Justin COMPTON

SCHEDULING YOUR MEALS WITH TRAINING

Do you set a minimum intake of meals before you train, like three to four meals before you lift plus a pre-workout shake? Do you always use pre-workout shakes or does that bloat you? I have bloating issues and I prefer to train on a light stomach. At your peak during your off-season or prep, what supplements do you take pre-, intra- and post-workout?

Good question. Sometimes, life hits you with circumstances that force you to alter the way you prefer to do things, but in a perfect world, I like to train after meal two or meal three. If I train after only meal one, I don't feel like I have enough energy to hit it as hard as I would like. If I train after meal five or so late in the day, I do feel a little bloated when I put some heavy weight on the bar. Not enough food in the system is bad, and so is too much food! So meal two or three is my sweet spot. The shakes can be bloating, too. I just prefer to use as little water as possible when making them.

For supplements, I use 10 grams of creatine year-round. BCAAs stay in year-round as well. The carbs vary. I've done as much as 120 grams in a sitting for a post-workout shake, but that's about all my stomach will handle before it rebels!

TRAINING EVERY BODY PART TWICE A WEEK

What would a week look like for you when you are hitting everything twice?

I like to change it every now and then so I don't get bored, but right now it looks like this:

Chest/Tri's
Back/Bi's
Shoulders/Calves
Legs
Chest/Tri's
Back/Biceps/Calves
Off

For the most part, it's two to three sets per exercise and several different exercises, so it works out to anywhere from 10-18 sets depending on the particular muscle. I do it to hit it from all angles, but sometimes I will do five or six sets of just a couple of exercises. Usually, my heaviest set on each exercise is to failure, while the other sets are just shy.



BODYBUILDING COOKING MADE SIMPLE

Justin, what's your main go-to meal that you make in large quantities? I like to keep things simple, and don't care if I eat the same shit every day.

I usually try to cook each day and eat fresh, unless I am traveling somewhere. But if you are looking to save time and cook in bulk, some basics would be beef and chicken, preferably baked. I can't eat grilled food after it's like a day old because it gets very, very dry. I can't eat cold pasta either, but yams seem to stay good for several days, along with red potatoes. You could also cook up a massive pot of rice that would last several days.

GREGORY JAMES



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TRAINERS of CHAMPIONS

IFBB PRO GURU *By George Farah*



"Many women make the mistake of being afraid that if they work out as long or as heavy as men, they are going to get big. Go ahead and push yourself as much as you can."



HATE CARDIO? THEN STAY LEAN YEAR-ROUND

George, first of all, great job with all of your athletes—Dexter Jackson, Kai Greene, Alex Cambronero and Lionel Beyeke, to name a few. I have a question concerning cardio and carbs. Your clients say that you have them on ridiculously high carbs and short-duration cardio, which is cool, but let's face it— they are not average Joes and have certain "advantages." What would you say to a person not using certain enhancements, who has a very easy time retaining fat?

The best approach is to stay lean year-around by controlling your food portions, and include some type of cardio in the off-season. The reason my clients eat lots of carbs and do so little cardio is because I work with them in the off-season to keep them in decent shape— so when we start the contest-prep, I don't have to make them suffer.

Enhancements or not, you still need to do your homework year-round in order to be in the winner's circle. I have helped many natural bodybuilders, and with great results. Bottom line is to stay as lean as possible year-round, and I promise that you also will be doing less cardio and eating more carbs the next time you decide to do a show-prep. Good luck.

WOMEN WHO LIFT WEIGHTS WON'T GET AS BIG AS MEN

This is one for the ladies. I train with my husband, on and off-season. Do you think that as a woman, I need to train drastically different from my husband? I recognize my weak points, and train those with priority. Should I do fewer sets, and do more or less cardio during prep? Currently I'm training my body three days a week, at three sets and eight reps per exercise. Is that enough, or you do have any other ideas?

Many women make the mistake of being afraid that if they work out as long or as heavy as men, they are going to get big. Go ahead and push yourself as much as you can— guys have testosterone and the heavier they push, the bigger they get. Women, on the other hand, have very low testosterone levels— the more they push, the better and more toned they will look, but they won't get as big as men. Trust me and stay with your husband— it will all work out for the best, in the end.

Follow me on Twitter @gvfarah
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George Farah is presenting his opinions and he does not, in any way, shape or form, encourage or condone the use of any illegal or controlled substances.

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THE BODYBUILDING WIZARD *By Charles Glass*

DON'T TRAIN HAMS AND QUADS TOGETHER

Do you feel it's necessary to train the hamstrings separately from the quads to get the best results? It seems like a lot of top amateurs and pros do this. Then again, I read about guys like Branch Warren who do quads and hams all in one workout, and it doesn't seem to have hurt his results any!

First of all, don't compare yourself to Branch Warren, particularly when it comes to legs. The man is a genetic freak and has one of the most thickly developed lower bodies in the history of our sport. Personally, I don't feel that a bodybuilder can give 100 percent to both quads and hams in one workout. They are both big, powerful muscle groups that are capable of a lot of hard work. If you have gone through a good quadriceps workout that may have included squats, leg presses, hack squats, leg extensions and lunges, there is just no way you are going to have enough energy left over to hit the hamstrings properly—not unless you are the Energizer Bunny. The only exception I would make is if you happened to already have either quads or hams that were disproportionately large for your physique. If your quads only needed maintenance work, theoretically you could do your entire hamstring workout, and then finish up with a few sets for quads. I haven't seen too many bodybuilders with such an imbalance. Otherwise, I would do them at different workouts to get the best results for both muscle groups.



"Rounding the lower back is just about the most dangerous thing you can do on deadlifts, but many bodybuilders do it, especially as they get tired toward the end of a set."

BACK PAIN? CHECK YOUR FORM ON SQUATS AND DEADLIFTS

I can go heavy on both deadlifts and squats, and I make sure I am using perfect form to protect myself. I get through my heavy lifts fine, and always warm up to them. But later, after my workout, I always feel a tingle in my lower back after training legs and back. Is this unusual? It feels scary at the time, and then it goes away. Hopefully, it isn't anything like nerve damage. Have you ever heard of this, and do you know what may be going on?

Your form on squats and deadlifts could be causing this, though I really have no way of knowing without watching you perform the lifts. But when people lean forward too much in the bottom position of either squats or deads, an inordinate amount of stress is placed on the lower back. Getting your form right on deadlifts is no easy task, unless you have a qualified and experienced trainer to teach you. I put a lot of my clients on the Smith machine for their deadlifts (often standing on a step or box) so they can pull with a straighter torso. Rounding the lower back is just about the most dangerous thing you can do on deadlifts, but many bodybuilders do it, especially as they get tired toward the end of a set.

What I would also suggest is that you thoroughly stretch the lower back after squats and deadlifts. It would be even better if you had someone to help you. Lie on your back and have a partner or spotter gradually lift your straightened legs up and back toward your head. Be careful not to exceed your flexibility, especially the first couple of times you try it. Stretching out your lower back should go a long way toward alleviating this disturbing tingling sensation you feel. If it persists, of course, see your doctor to make sure you aren't injured.



THE PRO CREATOR *By Hany Rambod*



"We are all individuals with unique and varying needs. You can't simply generalize and put everyone on the same program. Experiment a bit and see how your body responds."

CARBS, PROTEIN AND CARDIO ON AN EMPTY STOMACH

I am currently getting ready for a bodybuilding competition, and I've read many suggestions to do cardio on an empty stomach. I completely understand this principle, but with my work schedule, this is very difficult. I am in the military, and I have to be at work at 5:45 a.m. My drive to work takes 40 minutes, so I leave the house at 5:00 a.m. I work Tuesday through Friday and have a three-day weekend. Currently, I do a three-day split with weights (Sunday, Tuesday and Thursday) and three days of cardio and abs (Saturday, Monday and Wednesday). I rest on Friday for scheduling reasons. Generally, I eat my biggest portion of carbs in the morning (one-half cup of oatmeal). I can manage cardio on an empty stomach on Monday, since I am off work. On Saturday, however, the base gym doesn't open until 9:00 a.m. and on Wednesday, it is usually lunchtime before I can get away from work to do my cardio. My second and fourth meals are just two scoops of whey with skim milk, and I have had to switch some meals to make sure I get a whey shake, post-workout. On cardio days, should I just move the oatmeal to post-cardio or get rid of it completely and replace the calories with protein? And does it really make that much of a difference when I do my cardio?

The answers to your questions really depend on what type of metabolism you have. If you are getting ready for a show, and you are trying to get rid of some stubborn body fat and have hit a plateau, then doing your cardio first thing in the morning on an empty stomach is probably the only solution. Then again, if you are someone with better genetics for staying lean and losing fat, you can get away with doing cardio at just about any time and still see results. If you have truly superior genetics, like Ronnie Coleman, you can even diet on chicken smothered in KC Masterpiece barbecue sauce.

One thing you do need to understand is that the more insulin your body is releasing, the less successful your attempts at burning body fat will be. This is why for most people, doing cardio after eating a meal with carbs will have a lesser effect on fat loss. You don't necessarily have to have an empty stomach, though. You could see very good results doing cardio after only a whey protein shake without carbs in it. If you decide to do this, make sure you don't mix your shake in skim milk, because 16 ounces of it contains 24 grams of carbs—mostly in the form of lactose, or milk sugar.

If your body is holding on to fat and it doesn't seem to be coming off, you should definitely not be consuming carbs before your cardio. However, if you have a lightning-fast metabolism and you are the type of guy who loses three pounds if he misses a meal, you can and probably should eat a meal with both protein and some carbs before your cardio session.

Hopefully, you can see by my response how strongly I believe that we are all individuals with unique and varying needs. You can't simply generalize and put everyone on the same program, such as very low carbs, and expect optimal results. Experiment a bit and see how your body responds. Good luck, and my thanks to you for serving our nation.

Instagram: hanyrambod

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TEAM OXYGEN GYM *By Ron Harris*

Ahmad Ashkanani - Heir to the 212 Olympia Throne?

The most successful debut of the Olympia weekend happened in the 212 division, where a rookie from Kuwait named Ahmad Hamad Ashkanani took second place to reigning champion Flex Lewis. Though Ahmad had been a top amateur in international competitions for several years, he had just earned his pro card six months prior at the Arnold Amateur in Australia. I spoke with his good friend and coach, Ahmad Askar, to find out a little more about this rising star and his breakthrough rookie year as an IFBB pro.

How did the two of you start working together?

"Ahmad has been my friend and training partner since 2011. We also competed a few times together, he was in the under 80-kilogram class and I was in the under 90-kilogram class. Around the middle of 2015, I took over his nutrition and supplementation. He had come very close to winning his pro card five different times, winning his class, but not the overall needed. In fact, at the Arnold Amateur in Spain, he was tied for the overall, but they awarded it to the heavyweight."

What did you change the most about his program?

"The main change was to increase his protein, and especially his carbs. Ahmad had been dieting on very low carbs, and he would lose size. Before this, he was competing at 80-83 kilograms. Once he increased his carbs, he was able to move up a class and compete at just under 90 kilograms, where he turned pro. At the Mr. Olympia, he was exactly 96 kilograms, or 212 pounds."

What are his strong points, and what does he need to improve?

He has a massive back. That's his best feature. Ahmad also has very good arms. As far as his legs, his glutes and hams are strong points, but he does need a little more mass

in his quads. It's more so a lack of detail. He needs those deep lines in the quads. It is a concern to add more mass, because he still needs to weigh in at 212 pounds or less."

Were you surprised he did so well right away as a pro?

"Honestly, yes, I was. That's because I had only seen him stand onstage next to other amateurs for the past few years, never a pro. I went to Tampa with him, where he made his pro debut. There were guys up there who had been top five at the Olympia, and Ahmad won the show pretty easily. So then, I had a feeling he could be top three or four at the Olympia. Our goal was third place, to be honest. There were so many excellent competitors who would be competing, like Jose Raymond, David Henry, Eduardo Correa and Hide Yamagishi. We thought third place would be a great accomplishment for his first year, if he could do it. As you know, he went on to take second place to Flex Lewis, and we were very happy about that. Ahmad is still very new to the pro ranks, and he will be making improvements as time goes on. I think the 212 Olympia title could very well be in his near future."



"Ahmad is still very new to the pro ranks, and he will be making improvements as time goes on. I think the 212 Olympia title could very well be in his near future." -Ahmad Askar



AHMAD HAMAD ASHKANANI CONTEST HISTORY

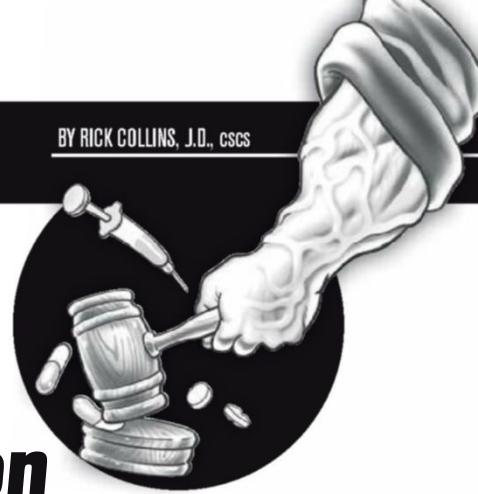
2010 IFBB Asian Amateur Championships	Middleweight Winner
2011 IFBB Arnold Amateur Europe	Second, Light Middleweight
2011 IFBB World Amateur Championships	10 th , Middleweight
2013 IFBB Amateur Olympia	Middleweight Winner
2013 IFBB Arnold Amateur Europe	Middleweight Winner
2014 IFBB Asian Amateur Championships	Second, Light Heavyweight
2015 IFBB Arnold Amateur	Middleweight Winner
2015 IFBB Amateur Olympia Spain	Light Heavyweight Winner
2016 IFBB Arnold Amateur Australia	Light Heavyweight & Overall Champion
2016 IFBB Tampa Pro	212 Winner
2016 IFBB 212 Mr. Olympia	Second Place

Instagram: ahmad_askar_1

Next month, more about Oxygen Gym and some of the top champions who train there.

Facebook: Oxygen Gym Jabriya

Instagram: o2_gyms



SWIS 2016 Features Dorian, Kaz and Ben Johnson

Q:

I SAW ON FACEBOOK THAT YOU SPOKE AT SWIS 2016. ANY HIGHLIGHTS TO SHARE?

SWIS stands for the Society of Weight-Training Injury Specialists, founded by chiropractor/powerlifter Dr. Ken Kinakin. Dr. Ken periodically hosts an amazing three-day conference outside Toronto, Canada, that brings together hundreds of bodybuilders, powerlifters, nutritionists, trainers, coaches and injury therapists for lectures, workshops, networking and special events. I was thrilled to be invited as faculty in 2015 and again in 2016. This year's October symposium was completely off the chain, with sports legends like strongman Bill Kazmaier, six-time Mr. Olympia Dorian Yates and IFBB pro Mindi O'Brien, along with dozens of experts in the field of strength and fitness.

In addition to my presentation, "Law Every Fitness Professional Should Know" (I then flew directly to Jacksonville, Florida, to present on the same topic for the NSCA's personal trainer conference), I was invited to sit on the "SWIS Nutrition Panel: Supplements and Steroids – Myths, Misconceptions and the Truth." Moderated by strength science guru Dr. David Sandler, and recorded by filmmaker Patrick Rivera, it was an incredible roster of researchers, academicians and athletes including Kaz, Dorian and notably, Olympic sprinter Ben Johnson. Johnson, you may recall, was the Canadian track and field athlete who smashed the world record in the 100m at the 1988 Seoul Olympics at a blistering 9.79 seconds, winning the most-watched race in history, then tested positive for

the anabolic steroid stanozolol. He was stripped of his gold medal and disgraced, although it is now thought by some that steroid use was widespread in track and field at the time.

Meeting Johnson in person for the first time was surreal. It was his doping scandal that outraged the U.S. Congress about steroids in sports, prompting hearings and the passage of the Anabolic Steroid Control Act of 1990 (ASCA), which punted steroids into the War on Drugs. It's only in recent years that such drug prohibition policies have been increasingly viewed as a failure. The ASCA, its successors and similar state laws have not stopped doping but have resulted in many thousands of Americans being arrested and prosecuted for steroid crimes, including simple possession for personal use.

Much of my practice over the past 25 years has been dedicated to seeking justice for people accused of breaking laws regarding steroids, and I've had the opportunity and privilege to help countless people whose court cases may otherwise have been handled based on ignorance, misinformation or propaganda. And, in a sense, I owe my entire legal niche practice to Ben Johnson.

If you missed SWIS 2016, the video bundle is available at <http://swisvideo.com/products/swis-symposium-2016-video-bundle>. I'll surely be speaking at the next SWIS, set for 2018! Don't miss it!



Johnson [pictured with Rick Collins] was stripped of his gold medal and disgraced, although it is now thought by some that steroid use was widespread in track and field at the time.

Rick Collins, JD, CSCS [www.rickcollins.com] is the lawyer that members of the bodybuilding community and nutritional supplement industry turn to when they need legal help or representation. [© Rick Collins, 2016. All rights reserved. For informational purposes only, not to be construed as legal or medical advice.]



SWIS Supplements and Steroids panel photo by Patrick Rivera.



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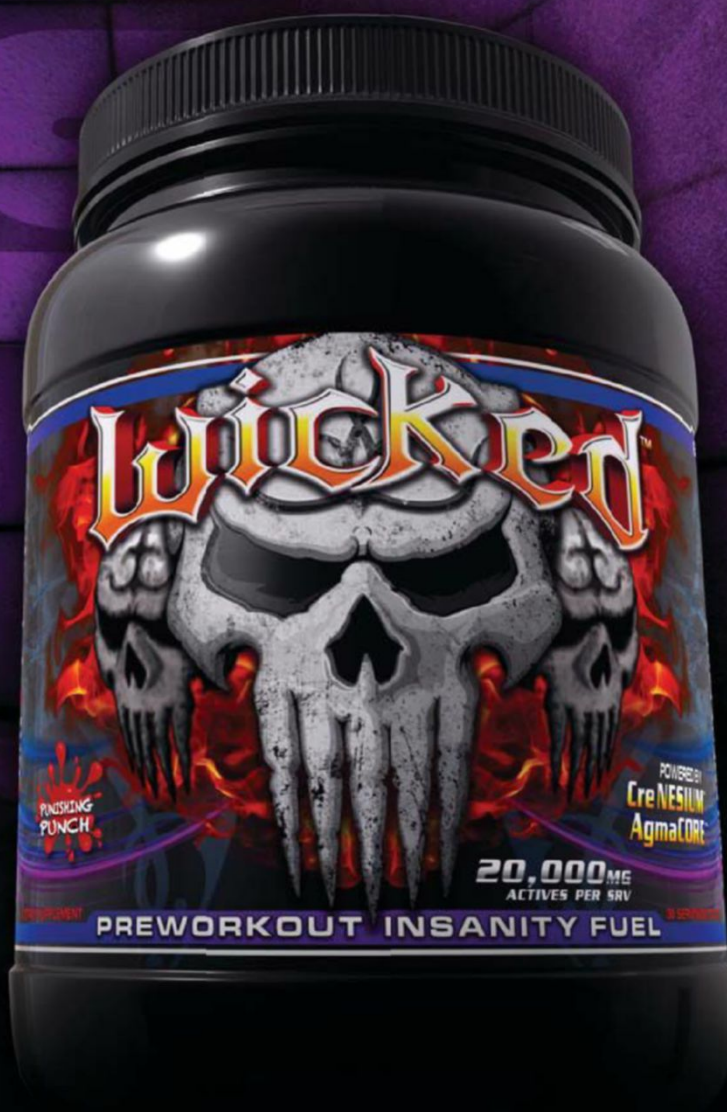


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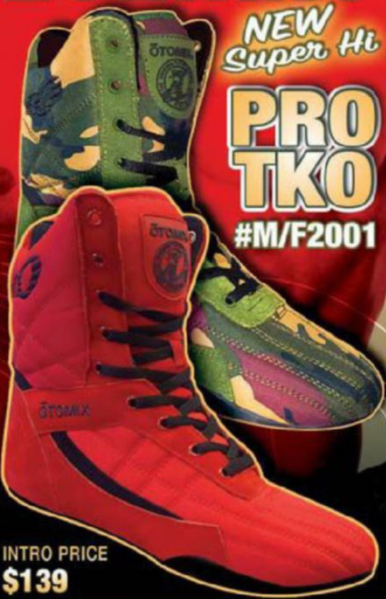
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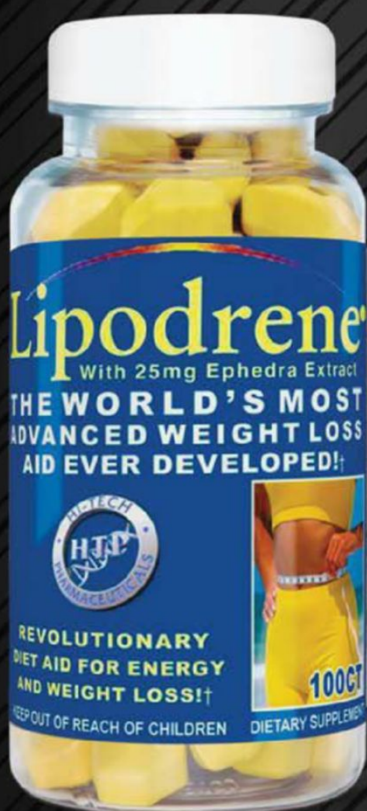
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